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Construction of Complete Life Tables for 23 Districts of Assam for both Male and Female

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Abstract: ***Complete life tables for the districts of Assam are not available in sample registration system (SRS). At the purpose once mortality data by year of age aren't accessible, evaluating complete life tables from abridged life tables is crucial. In this paper we introduce a numerical methodology to construct complete life table from abridged one. To begin with, we construct model life table for Assam for both male and female by using SRS data covering the time period of 15 years from 1995-99 to 2009-13. By using these model life tables we have been constructed abridged life tables of twenty three districts of Assam. After that, Elandt-Johnson methodology has been used to construct complete life tables for 23 districts of Assam. These life tables could be used for the study of mortality, longevity, fertility, and population growth, as well as in making projections of population. It is observed that Child mortality rate for male is more than 10 in 9 districts, whereas in 18 districts of Assam, child mortality rate for female seems to be more than 10. It is also to be noted that child mortality for female is always more than that of male for all the districts.***

Keywords: Life Table, Life Table Method, Life Expectancy, Model Life Table, Elandt-Johnson Method

1. Introduction

A life table is a statistical device used by actuaries, demographers, public health workers and others to present the mortality experience of a population total in a structure that grants noting numerous related inquiries on mortality [6]. Life tables are used to compute life expectancy at birth and at different ages, but they are also used to compute many other indicators: death probabilities, probabilities of survival between two ages, years of life lived and the number of survivors at different ages. It joins mortality experience of a population at various ages into a single statistical model. The mains columns in the table are: l_x, ${}_nd_x$, ${}_nq_x$, ${}_nL_x$,T_x,$e^0{}_x$ [8]. Forabridged life table n is taken as 5 or 10 years. Age $'x'$ means exact age x in this column. In the case of complete life table the column is designed by only age $x$where $x = 0, 1, \ldots, w$; where w is the highest attained age.In different applications the death rates in the life table are combined with other demographic data into a complex model which measures the joined impact of mortality and changes in one or more socioeconomic characteristics [5]. The essential synopsis measure of mortality from the life table, the expectation of life at birth, is broadly understood by general public and trends in life expectancy are closely monitored as the principal measure of changes in a population's health status. The life expectancy at birth, the last yield of a life table, is the average number of years a new born of a particular place can expect to live. It is typically considered as an important indicator of the mortality level of population [5].

The construction of a life table makes it possible to summarize mortality within a population at a given time (period life table) or within a cohort (cohort life table). The death registration system of India is not adequate and so by using the conventional method life tables cannot be constructed [7],[9]. A number of indirect methods are available in the absence of observed age specific death [13]. Most of these methods cannot be adopted because of unavailable of one or more required data elements or the underlying assumptions are not satisfied.

A set of model life tables ideally depicting the typical age-patterns of mortality for different levels may be of immense help to construct life tables for such countries if the level of mortality is indirectly estimated. United Nations made the first attempt to develop model life tables [12]. In the CoaleDemeny[1] regional model life tables four patterns ascertained within the 192 life tables by sex were known. For every of those patterns coefficients of linear equations relating to ${}_nq_x$ and ${e_{10}}^0$ were obtained by least square regression. From the equations, it had been easy to derive an entire set of ${}_nq_x$ values and, therefore, a model life table from any given value of ${e_{10}}^0$ [13]. Choudhury and Sarma [7] estimated the curve of ${}_nq_x$ from ${e_0}^0$ instead of ${e_{10}}^0$ (as they have only the estimated ${e_0}^0$ for the districts) by using the Sample Registration System (SRS) data covering a period of 30 years from 1970-75 to 2001-05 for India and its major states.

The main focus of the manuscript is to construct complete life tables for 23 districts of Assam, India for both male and female. This work is important as the life tables for districts of Assam are not available in sample registration system (SRS). Abridged life tables for twenty-three districts of Assam for both male and female up to age $x = 85$have been constructed by using SRS data covering a time period of sixteen years from 1995-99 to 2009-13 [2]. After construction of abridged life tables,the complete life tables for 23 districts of Assam have been constructed by expanding the abridged life tables using Elandt- Johnson method [10].Two summary tables have been presented here rather than presenting the complete life tables of 23 districts for both the sexes.

2. Methods and Materials

2.1 Construction of abridged life table

We utilized an indirect method of constructing abridged life tables for 23 districts of Assam for both male and female.For this first we generate model life tablesby estimating life table functions ${e^0}_x$ and ${}_nq_x$ for Asssam for both male and female. We estimated ${e^0}_x$ and ${}_nq_x$ by using regression method of curve estimation [7]based on SRS information covering a timeperiod of15 years from 1995-99 to 2009-13 (Census of India, Sample Registration System) for Assam. SPSS has been used tocheck the existence of proper functional relationship (Model)(linear, quadratic or cubic) between ${e^0}_x$ and ${}_nq_x$ with ${e^0}_0$ .The best fit model ${e^0}_x$ havebeen selected based on the most extreme R^2value. On the off chance that for some x, the ascertained ${}_nq_x$ results in some negative value or the ${}_nq_x$ curve demonstrates a few inconsistencies we bring the capacity with the following most astounding and so on till all ${}_nq_x$ values are computed up to age $x = 85$.

The remaining functions of the abridged life table are determined as:

$d_x = q_x l_x$ for $x = 1,5,\cdots 85$ and $l_0 = 100000$

$$l_{x+n} = l_x - d_x$$

$${}_1L_0 = 0.276 l_0 + 0.724 l_1$$

$${}_4L_1 = 0.034 l_0 + 1.184 l_1 + 2.782 l_5$$

$${}_5L_5 = -0.003 l_0 + 2.242 l_5 + 2.761 l_{10}$$

The values of ${}_5L_x$ from ages 10 and above are obtained as ${}_5L_x = T_x - T_{x+5}$ and

$$T_x = \frac{{e^0}_x}{l_x}$$

The generated model life tables of Assam serve as model life tables for districts of Assam with ${e^0}_0$[11] as the only input.

2.2 Construction of complete life table

The Elandt-Johnson Method

A complete life table should really be developed from the original mortality data grouped in single year (or even narrower) intervals. At the point when such information is not accessible in published form, a complete life table can often be constructed from an abridged life table using some smoothing formulae. The Elandt-Johnson Method yields a complete life table from an abridged one using "smoothing" formulae and three interpolation schemes depending on age x[10].Essentially, we need three kind of interpolation: (1) for very young age (0 to 9); (2) for the broad class of ages (10 to 74); and (3) for very old ages (75 and above). The utilization of six-point Lagrangian interpolation over the age range1-74 and smoothing by fitting a Gompertzcurve for ages above 75 for expanding an abridged life table to complete life table.Matlabversion 7.11.0.584 has been used for evaluating the coefficients for the six point Lagrangian interpolation for interpolating on any tabulated value l_x. Table 5 and Table 6 give the coefficients for Lagrangian interpolation for the age group 2 to 9 and 11 to 74 respectively.

For ages 75 and above theElandt-Johnson Method uses the Gompertz survival distribution. The Gompertz survival function can be written as

$$S(x|a,R) = e^{\frac{R}{a}(1-e^{ax})} = b^{1-c^x}, \qquad (2.1)$$

where$x > 0, R > 0, a > 0, b = e^{\frac{R}{a}}$ and $c = e^a$,
where x denotes age,a and R denote its parameters.
Let x_1 and $x_1 + 5$ be two adjacent tabulated points of l_x say, and calculate,

$$y_1 = \log\frac{l_{x_1}}{l_{x_1+5}} = c^{x_1}(c^5 - 1)\log b, \qquad (2.2)$$

where $l_{x_1} = b^{1-c^{x_1}}$, $l_{x_1+5} = b^{1-c^{x_1+5}}$ (by using equation (2.1)).

Similarly, for another pair x_2 and $x_2 + 5$ we have,

$$y_2 = \log\frac{l_{x_2}}{l_{x_2+5}} = c^{x_2}(c^5 - 1)\log b. \quad (2.3)$$

From (2.2) and (2.3) we get

$\frac{y_1}{y_2} = c^{x_1 - x_2}$,

$$\Rightarrow \hat{c} = \left(\frac{y_1}{y_2}\right)^{1/x_1 - x_2}. \qquad (2.4)$$

From equation (2.2)

$$\hat{b} = \exp\{\frac{y_1}{c^{x_1}(c^5-1)}\}. \qquad (2.5)$$

The parameters b and c (functions of parameters $a$and R) are estimated for each age x using equation (2.4) and (2.5). After estimating these parameters, the survivals using the equation (2.1) may be calculated as

$\hat{S}(x+i) = \hat{b}^{1-\hat{c}^{x+i}}$,

where$i = 1, \cdots 4$ for $x = 75, 80, \cdots ,100$.

Subsequent to assessing the l_x (the number of survivors at age x) values, the other life table functions are evaluated as follows:

d_x = Expected number of deaths in $(x, x+1) = l_x - l_{x+1}$.

q_x = Probability of dying between age $x$to $x + 1 = \frac{d_x}{l_x}$.

L_x = Person-years lived between age $x$to $x + 1 = l_x - \frac{1}{2}d_x$.

T_x = Person-years lived above age x.

${e_x}^o$ = Expectation of life at age $x = \frac{T_x}{l_x}$.

Additionally a number of inferences can be derived from a life table as follows:

$\frac{l_y}{l_x} = {}_{y-x}p_x$: Probability of surviving from age x to age y.

$1 - \frac{l_y}{l_x} = {}_{y-x}q_x$: Probability of dying between ages x and age y.

$l_x - l_y = {}_{y-x}d_x$: Number of people dying between ages $x$and y.

$T_x - T_y = {}_{y-x}L_x$: Number of person-years lived between ages $x$and y.

$\frac{d_x}{l_0}$: Probability that a new born will die between ages $x$and y.

$\frac{l_x - l_y}{l_0}$: Probability that a new born will experience his death between ages $x$and y.

$\frac{T_x - T_y}{l_0}$: Number of years that a new born can expect to live between ages $x$and y.

3. Results and Discussion

It has been seen from our results that $e_x{}^o$ and ${}_nq_x$'s are related to $e^0{}_0$ by different relationship (linear or quadratic model) for various x's. The estimated parameters along with high R^2 is appeared in Table 1, 2, 3 and 4 for male and female separately.

Table 1: Estimated Parameters along with R^2 of fitted $e_x{}^o$ for Female in Assam

Dependent	Model	R^2	Parameters	
			a	b
e_1	Linear	.989	14.743	.817
e_5	Linear	992	17.653	.735
e_{10}	Linear	.991	19.121	.641
e_{15}	Linear	.985	16.338	.611
e_{20}	Linear	.977	13.755	.583
e_{25}	Linear	.958	12.688	.529
e_{30}	Linear	.951	11.298	.481
e_{35}	Linear	.959	10.172	.429
e_{40}	Linear	.942	6.912	.411
e_{45}	Linear	.927	6.703	.345
e_{50}	Linear	.930	2.957	.341
e_{55}	Linear	.886	.828	.313
e_{60}	Linear	.845	.516	.262
e_{65}	Linear	.763	3.261	.163
e_{70}	Linear	.720	-1.786	.207
e_{75}	Linear	.726	-8.067	.279
e_{80}	Linear	.756	-13.909	.351
e_{85}	Linear	.748	-16.943	.381

Table 2: Estimated Parameters along with R^2 of fitted q_x for Female in Assam

Dependent	Model	R^2	Parameters		
			a	b	c
q_0	Linear	.854	.298	-.004	
q_1	Linear	.767	.238	-0033	
q_5	Quadratic	.932	.291	-.007	.00004568
q_{10}	Linear	.721	.0539	-.0008	
q_{15}	Quadratic	.782	-.056	.003	-.00003143
q_{20}	Linear	.848	.089	-.001	
q_{25}	Linear	.712	.099	-.001	
q_{30}	Linear	.912	.1	-.001	
q_{35}	Linear	.672	.1221	-.0017	
q_{40}	Linear	.959	.175	-.002	
q_{45}	Linear	.893	.2222	-.0032	
q_{50}	Linear	.867	.19	-.002	
q_{55}	Linear	.875	.298	.004	
q_{60}	Linear	.959	.569	-.008	
q_{65}	Linear	.767	-.048	.004	
q_{70}	Quadratic	.717	13.836	-.459	.004
q_{75}	Linear	.889	1.098	-.012	
q_{80}	Linear	.718	1.372	-.015	

Table 3: Estimated Parameters along with R^2 of fitted $e_x{}^o$ for Male in Assam

Dependent	Model	R^2	Parameters		
			a	b	c
e_1	Linear	.938	21.517	.695	
e_5	Linear	.930	29.600	.518	
e_{10}	Linear	.883	32.843	.390	
e_{15}	Linear	.871	30.087	.359	
e_{20}	Linear	.891	24.846	.371	
e_{25}	Linear	.861	23.365	.321	
e_{30}	Linear	.897	20.125	.302	
e_{35}	Linear	.904	16.461	.290	
e_{40}	Linear	.890	14.969	.243	
e_{45}	Linear	.955	11.440	.233	
e_{50}	Linear	.923	10.242	.191	
e_{55}	Linear	.801	10.060	.133	
e_{60}	Linear	.851	6.651	.139	
e_{65}	Linear	.888	10.627	.024	
e_{70}	Linear	.808	15.227	-.093	
e_{75}	Linear	.859	16.093	-.140	
e_{80}	Quadratic	.791	376.367	-12.341	.103
e_{85}	Quadratic	.797	410.918	-13.531	.113

Table 4: Estimated Parameters along with R^2 of fitted q_x for Male in Assam

Dependent	Model	R^2	Parameters	
			a	b
q_0	Linear	.829	.414	-.006
q_1	Linear	.840	.210	-.003
q_5	Linear	.908	.142	-.002
q_{10}	Linear	.934	-.0539	-.0008
q_{15}	Linear	.712	-.039	.001
q_{20}	Linear	.724	.126	-.002
q_{25}	Linear	.825	.087	-.001
q_{30}	Linear	.761	.14	-.002
q_{35}	Linear	.609	.132	-.002
q_{40}	Linear	.863	.267	-.004
q_{45}	Linear	.777	.153	-.002
q_{50}	Linear	.880	.271	-.003
q_{55}	Linear	.827	.107	.000
q_{60}	Linear	.934	.724	-.010
q_{65}	Linear	.716	.065	.003
q_{70}	Linear	.848	1.040	-.013
q_{75}	Linear	.747	-.671	.018
q_{80}	Linear	.872	-1.225	.029

Table 5: Coefficients used to Calculate l_2 to l_9

	$x = 1$	$x = 5$	$x = 10$	$x = 15$	$x = 20$	$x = 25$
l_2	0.562030	0.717600	-0.478400	0.283886	-0.100716	0.015600
l_3	0.273392	1.047199	-0.531911	0.299200	-0.103747	0.015867
l_4	0.096491	1.108800	-0.328533	0.172800	-0.058358	0.008800
l_6	-0.041667	0.798000	0.354667	-0.152000	0.048000	-0.007000
l_7	-0.048872	0.561600	0.665600	-0.240686	0.072758	-0.010400
l_8	-0.037281	0.333200	0.888533	-0.244800	0.070147	-0.009800
l_9	-0.018379	0.140800	1.001244	-0.160914	0.043116	-0.005867

Table 6: Coefficients used to Calculate l_{11} to l_{74}

	$x = 5m - 10$	$x = 5m - 5$	$x = 5m$	$x = 5m + 5$	$x = 5m + 10$	$x = 5m + 15$
l_{5m+1}	0.008064	-0.07392	0.88704	0.22176	-0.04928	0.006336
l_{5m+2}	0.011648	-0.09984	0.69888	0.46592	-0.08736	0.010752
l_{5m+3}	0.010752	-0.08736	0.46592	0.69888	-0.09984	0.011648
l_{5m+4}	0.006336	-0.04928	0.22176	0.88704	-0.07392	0.008064

Where
forl_{11} to l_{14} put $m = 2$
forl_{16} to l_{14} put $m = 3$
forl_{71} to l_{74} put $m = 14$

Table 7: A comparison of Generated and SRS Based Life Tables for Assam (Male, 2009-13)

Assam (2009-13)							SRS (2009-13)	
Age	l_x	q_x	d_x	L_x	T_x	$e_x{}^o$	q_x	$e_x{}^o$
0	100000	0.04260	4260	96916	6190000	61.90	0.05385	61.90
1	95740	0.02430	2326	376633	6178820	64.54	0.02116	64.50
5	93414	0.01820	1700	462354	5760270	61.66	0.00379	61.80
10	91713	0.00438	402	449764	5226196	56.98	0.00568	57.00
15	91312	0.02290	2091	510713	4776432	52.31	0.00757	52.40
20	89221	0.00220	196	416760	4265720	47.81	0.01223	47.70
25	89024	0.02510	2235	479882	3848959	43.23	0.01395	43.30
30	86790	0.01620	1406	430849	3369078	38.82	0.01543	38.90
35	85384	0.00820	700	396812	2938229	34.41	0.01996	34.40
40	84684	0.01940	1643	393757	2541417	30.01	0.03187	30.10
45	83041	0.02920	2425	368875	2147660	25.86	0.04983	26.00
50	80616	0.08530	6877	429891	1778785	22.06	0.05802	22.20
55	73740	0.10700	7890	344356	1348895	18.29	0.11190	18.40
60	65849	0.10500	6914	290680	1004539	15.26	0.12443	15.40
65	58935	0.25070	14775	295649	713858	12.11	0.19304	12.20
70	44160	0.2353	10391	418210	418210	9.47	0.30170	9.50
75	33769	0.4432	14967	250804	250804	7.43	0.42025	7.50
80	18803	0.5701	10719	133780	133780	7.11	0.49188	6.30
85	8083	1	10719	51095	51095	6.32	1.00000	5.10

Table 8: A comparison of Generated and SRS Based Life Tables for Assam (Female, 2009-13)

Assam (2009-13)							SRS (2009-13)	
age	l_x	q_x	d_x	L_x	T_x	$e_x{}^o$	q_x	$e_x{}^o$
0	100000	0.05516	5516	96006	6510000	65.10	0.05597	65.10
1	94484	0.02317	2189	372033	6674321	70.60	0.02666	67.90
5	92295	0.00708	653	459647	6045448	65.50	0.00548	65.80
10	91641	0.00182	167	438799	5576386	60.90	0.00474	61.10
15	91475	0.00160	146	415160	5137587	56.20	0.01065	56.40
20	91328	0.01964	1794	503031	4722427	51.70	0.01064	52.00
25	89535	0.01480	1325	460695	4219395	47.10	0.00856	47.50
30	88209	0.00993	876	431303	3758700	42.60	0.01149	42.90
35	87333	0.01143	998	420653	3327397	38.10	0.01627	38.30
40	86335	0.01271	1097	420993	2906745	33.70	0.01406	33.90
45	85238	0.01388	1183	371260	2485752	29.20	0.03769	29.40
50	84055	0.04029	3387	403978	2114492	25.20	0.04458	25.40
55	80668	0.04985	4021	363659	1710514	21.20	0.06779	21.50
60	76647	0.07532	5773	363672	1346856	17.60	0.08744	17.90
65	70874	0.11996	8502	254076	983184	13.90	0.17860	14.30
70	62372	0.90714	56580	729109	729109	11.70	0.21940	11.90
75	5792	0.3168	1835	58474	58474	10.10	0.36203	9.50
80	3957	0.3955	1565	35380	35380	8.90	0.37726	8.50
85	2392	1	2392	18801	18801	7.90	1.00000	7.10

Based on maximum valueof R^2, we select the best fitting model and observe that the linear model is the best fit for all $e_x{}^o$ (for female). Also we see that the linear model is the best fit for ${}_nq_x$ values (female) exceptq_5, q_{15} and q_{75}. In case of q_5, q_{15} and q_{75} the quadratic model is the best fit as it gives the highest R^2 value. Now in case of male we observe that linear model is the best fit for all ${}_nq_x$ and $e_x{}^o$ except $e_{80}$and e_{85}. As the quadratic model gives the highest R^2 value in case of $e_{80}$and e_{85}, hence the quadratic model is considered the best fit model.

In the SRS life tables at times a few irregularities are found in the ${}_nq_x$ values. Such inconsistencies result in a low R^2 in the regression and may distort the curve. Disposal of such unpredictable information focuses from the relapse examination expands the R^2considerably. In this manner, at whatever point such a circumstance is experienced, information focuses in charge of the anomalies are to be dispensed with at the expense of level of opportunity.

Utilizing the coefficients (Table 1 to Table 4), $e_x{}^o$ and ${}_nq_x$ column of the life table can be completed for different age groups from a given $e_0{}^o$ of the districts and the entire life table can be finished utilizing the equations as given above.The life table for Assam generated from SRS and the relating SRS life tables are contrasted and found with be tastefully closer to each other (as shown in Table 7and Table 8).From our generated abridged life tables of 23 districts of Assam we develop complete life tables by using theElandt–Johnson method. The evaluated life expectancy for the districts of Assam and watched qualities are stood out and found to be acceptably nearer to each other. Two summary tables (Table 9 and Table 10) have been presented here rather than presenting of complete life tables of 23 districts of Assam over the age range 0 to 100.

4. Conclusion

The complete life tables for 23 districts of Assam for both male and female have been constructed by using Elandt-Johnson method. From our constructed life tables, we have got the information of mortality, survivorship and the life expectancy of various districts at various ages. Also, it can be known probability of surviving any particular year of age and the remaining life expectancy for people at different ages.Based on the Table 9, it can be concluded that, among all the districts of Assam, Dhubri has the highest child mortality rates in the age groups (0-6) years for male. It has been observed that the female child mortality rate is also the highest in the district of Dhubri. Kokrajhar, the district bordering Dhubri and dominated by Bodo tribes has also high mortality rate.

Table 9: The Child Mortality Rate of the Age Group (0-6) of 23 Districts of Assam for Both Male and Female

Districts	Male (in %)	Female (in %)
Kokrajhar	10.66	12.06
Dhubri	14.56	13.08
Goalpara	12.53	11.63
Bongaigaon	10.84	11.12
Barpeta	10.12	9.97
Kamrup	8.14	9.27
Nalbari	7.50	8.84
Darang	12.35	13.36
Marigaon	10.30	10.76
Nagaon	8.86	10.25
Sonitpur	9.67	11.48
Lakhimpur	7.96	10.11
Dhemaji	8.23	10.61
Tinsukia	7.68	10.32
Dibrugarh	6.50	9.57
Sibsagar	7.59	10.25
Jorhat	6.59	9.71
Golaghat	8.21	10.98
Karbi angling	11.02	12.89
North Cachar	9.04	12.21
Cachar	9.31	10.32
Karimganj	10.21	11.03
Hailakandi	9.94	12.06

On the other hand, Dibrugarh and Kamrup reported the lowest child mortality for male and female respectively. Out of 23 districts, child mortality for male seems to be more than 10 in 9 districts, whereas in 18 districts of Assam, child mortality rate for female more than 10. It is also noted that child mortality for female is always more than that of male for all the districts. Additionally, it has been calculated from our result that the probability of surviving from birth to age 40 for Dhubri (male) district is lower than Dibrugarh district.Then again, probability of a person who survived to age 40 would die before age 60 for Dhubri (male) district is higher than Dibrugarh (male) district. It might likewise presume that number of years thata new born male of Dibrugarh district can expect to live more in the age interval 25-30 than Dhubri district.Finally, it can be concluded that the Elandt – Johnson method is most valuable tool for expanding the abridged life table to complete life table for Assam and its districts.

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Table 10: Estimated Values of l_x for 23 Districts of Assam for Male Populations

Age	Kokrajhar	Dhubri	Goalpara	Bongaigaon	Barpeta	Kamrup	Nalbari	Darang	Marigaon	Nagaon	Sonitpur	Lakhimpur	Dhemaji	Tinsukia	Dibrugarh	Sibsagar	Jorhat	Golaghat	Karbi anglong	North Cachar	Cachar	Karimganj	Hailakandi
0	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000
1	93400	90760	92140	93280	93760	95080	95500	92260	93640	94600	94060	95200	95020	95380	96160	95440	96100	95020	93160	94480	94300	93700	93880
2	92579	89540	91125	92440	92994	94524	95012	91264	92856	93968	93342	94664	94455	94873	95780	94943	95711	94455	92301	93829	93620	92925	93134
3	91700	88366	90103	91548	92158	93844	94382	90255	92005	93230	92540	93998	93767	94228	95230	94306	95154	93767	91395	93077	92847	92081	92311
4	90836	87275	89129	90673	91325	93132	93709	89292	91162	92473	91735	93297	93049	93544	94619	93627	94536	93049	90509	92309	92063	91244	91490
5	90038	86295	88242	89866	90553	92456	93065	88413	90381	91762	90984	92630	92369	92891	94025	92978	93938	92369	89694	91589	91330	90467	90726
6	89339	85440	87467	89159	89876	91862	92499	87645	89697	91137	90326	92044	91771	92317	93502	92407	93411	91771	88980	90957	90686	89786	90056
7	88756	84718	86817	88570	89314	91375	92036	87000	89127	90622	89780	91564	91281	91847	93080	91941	92984	91281	88385	90435	90154	89221	89500
8	88294	84126	86291	88102	88871	91004	91688	86481	88678	90224	89353	91198	90906	91492	92769	91589	92670	90906	87911	90030	89740	88775	89064
9	87947	83655	85883	87748	88541	90741	91447	86078	88343	89937	89038	90942	90640	91245	92563	91345	92461	90640	87551	89736	89437	88442	88740
10	87697	83292	85578	87493	88308	90570	91297	85778	88104	89743	88819	90777	90466	91089	92446	91192	92341	90466	87291	89537	89229	88206	88512
11	87518	83008	85347	87309	88144	90464	91209	85552	87935	89615	88668	90676	90357	90996	92389	91102	92281	90357	87102	89404	89088	88039	88353
12	87391	82798	85180	87178	88030	90395	91156	85388	87816	89530	88564	90612	90286	90938	92359	91047	92250	90286	86967	89314	88992	87923	88243
13	87288	82638	85048	87072	87935	90331	91102	85260	87719	89455	88476	90551	90221	90882	92323	90992	92212	90221	86858	89237	88910	87826	88151
14	87179	82504	84928	86963	87830	90240	91016	85140	87612	89359	88374	90462	90130	90794	92244	90905	92132	90130	86748	89140	88811	87721	88047
15	87039	82374	84792	86823	87688	90093	90867	85004	87471	89214	88231	90314	89983	90646	92092	90757	91981	89983	86608	88995	88667	87579	87905
16	86740	82171	84540	86529	87375	89728	90485	84748	87163	88868	87906	89944	89620	90268	91682	90377	91574	89620	86318	88654	88333	87269	87587
17	86403	81948	84259	86198	87022	89313	90050	84462	86815	88476	87540	89524	89208	89839	91215	89945	91109	89208	85992	88268	87955	86919	87229
18	86050	81705	83960	85850	86653	88885	89602	84158	86452	88070	87157	89090	88783	89397	90736	89500	90633	88783	85650	87867	87562	86553	86855
19	85704	81445	83656	85508	86294	88479	89181	83850	86097	87681	86788	88679	88379	88979	90289	89081	90188	88379	85311	87482	87184	86196	86492
20	85385	81171	83359	85191	85969	88129	88823	83551	85774	87340	86457	88327	88030	88624	89919	88724	89819	88030	84997	87144	86849	85872	86164
21	85221	80925	83155	85024	85818	88023	88732	83351	85619	87217	86316	88225	87922	88529	89852	88631	89750	87922	84826	87017	86716	85719	86016
22	85081	80658	82952	84877	85695	87969	88701	83154	85490	87138	86209	88178	87865	88491	89857	88597	89752	87865	84673	86932	86621	85593	85900
23	84937	80362	82734	84726	85574	87931	88690	82943	85361	87069	86106	88148	87823	88473	89891	88582	89781	87823	84515	86855	86533	85468	85786
24	84762	80027	82480	84544	85422	87868	88656	82696	85202	86973	85974	88093	87756	88430	89903	88543	89789	87756	84325	86751	86417	85312	85642
25	84531	79645	82175	84305	85213	87741	88556	82398	84985	86816	85783	87974	87625	88323	89847	88440	89729	87625	84079	86586	86241	85099	85440
26	84126	79175	81738	83897	84818	87382	88209	81964	84586	86444	85396	87619	87265	87973	89520	88092	89400	87265	83668	86210	85861	84702	85048
27	83658	78662	81248	83426	84356	86946	87781	81476	84122	85998	84940	87185	86827	87542	89106	87662	88985	86827	83195	85762	85409	84239	84588
28	83145	78118	80719	82912	83848	86458	87299	80948	83613	85502	84436	86698	86338	87058	88634	87179	88512	86338	82679	85265	84909	83730	84083
29	82611	77554	80170	82376	83319	85946	86794	80401	83082	84984	83911	86188	85825	86551	88138	86673	88015	85825	82142	84745	84387	83200	83555
30	82080	76985	79620	81843	82793	85443	86298	79852	82554	84472	83390	85687	85321	86053	87655	86176	87531	85321	81607	84231	83870	82673	83031

31	81611	76426	79106	81369	82337	85039	85911	79342	82094	84049	82946	85287	84914	85661	87296	85786	87169	84914	81129	83803	83435	82215	82580
32	81175	75886	78618	80929	81917	84678	85570	78860	81669	83666	82539	84933	84551	85315	86987	85443	86858	84551	80683	83415	83038	81793	82165
33	80779	75374	78165	80527	81538	84365	85279	78411	81284	83329	82174	84625	84235	85017	86731	85148	86598	84235	80276	83071	82686	81411	81792
34	80425	74898	77750	80167	81201	84097	85034	78002	80941	83035	81853	84364	83964	84766	86523	84900	86387	83964	79910	82771	82376	81071	81461
35	80110	74460	77374	79846	80905	83871	84831	77632	80639	82783	81572	84144	83734	84556	86358	84693	86218	83734	79583	82512	82108	80772	81171
36	79871	74129	77090	79603	80680	83699	84676	77352	80410	82591	81359	83977	83559	84396	86231	84536	86089	83559	79335	82315	81904	80545	80951
37	79647	73808	76817	79374	80470	83543	84540	77084	80195	82415	81161	83827	83401	84254	86124	84396	85979	83401	79101	82135	81716	80332	80745
38	79413	73467	76530	79135	80252	83387	84404	76802	79972	82236	80956	83676	83242	84112	86021	84258	85873	83242	78857	81950	81523	80112	80533
39	79147	73078	76203	78863	80004	83211	84252	76480	79719	82033	80725	83507	83063	83953	85908	84102	85756	83063	78579	81741	81304	79861	80292
40	78828	72613	75811	78537	79707	82998	84068	76095	79414	81789	80446	83303	82846	83761	85770	83914	85614	82846	78246	81489	81041	79560	80002
41	78342	71918	75221	78041	79252	82665	83776	75514	78949	81411	80018	82982	82507	83457	85545	83616	85383	82507	77740	81100	80635	79100	79558
42	77803	71156	74570	77491	78747	82291	83445	74874	78432	80987	79541	82620	82126	83114	85286	83279	85117	82126	77179	80664	80182	78589	79064
43	77231	70360	73886	76908	78210	81885	83084	74200	77883	80533	79033	82227	81715	82740	84997	82912	84822	81715	76585	80198	79697	78046	78538
44	76648	69563	73195	76313	77659	81460	82701	73519	77321	80060	78509	81813	81284	82345	84684	82523	84502	81284	75981	79714	79196	77490	77998
45	76069	68794	72521	75725	77109	81023	82302	72853	76761	79581	77984	81387	80841	81935	84347	82118	84159	80841	75383	79224	78691	76935	77458
46	75655	68265	72049	75305	76712	80695	81997	72386	76358	79227	77602	81066	80510	81624	84081	81810	83889	80510	74957	78864	78322	76535	77067
47	75213	67739	71564	74859	76284	80319	81639	71906	75925	78832	77186	80694	80131	81260	83752	81449	83558	80131	74507	78463	77914	76105	76643
48	74697	67162	71017	74340	75777	79852	81185	71361	75415	78349	76688	80231	79662	80802	83320	80994	83124	79662	73984	77978	77422	75596	76140
49	74059	66480	70355	73699	75146	79251	80595	70702	74782	77737	76063	79633	79060	80209	82748	80403	82551	79060	73341	77362	76803	74964	75512
50	73255	65643	69533	72893	74348	78479	79833	69881	73982	76955	75271	78864	78287	79444	82002	79639	81803	78287	72533	76578	76015	74165	74716
51	72071	64379	68307	71705	73178	77366	78740	68658	72808	75820	74113	77756	77171	78345	80943	78543	80741	77171	71340	75438	74867	72993	73551
52	70723	62967	66924	70353	71842	76077	77469	67278	71467	74513	72787	76473	75880	77069	79701	77269	79496	75880	69985	74126	73549	71654	72218
53	69255	61462	65435	68883	70381	74648	76052	65791	70004	73071	71332	75047	74449	75648	78304	75850	78097	74449	68512	72681	72100	70191	70760
54	67714	59924	63893	67342	68842	73117	74525	64248	68464	71536	69794	73517	72917	74120	76784	74322	76576	72917	66971	71145	70563	68652	69221
55	66149	58409	62351	65779	67271	71526	72928	62704	66895	69952	68218	71924	71327	72525	75179	72726	74972	71327	65410	69563	68984	67082	67648
56	64727	57201	61035	64367	65817	69950	71311	61378	65452	68421	66737	70336	69756	70920	73496	71115	73295	69756	64009	68043	67481	65634	66183
57	63321	56023	59742	62973	64378	68380	69698	60075	64024	66900	65269	68754	68193	69319	71812	69508	71618	68193	62625	66534	65990	64200	64733
58	61922	54825	58443	61583	62949	66837	68117	58767	62604	65400	63814	67201	66656	67749	70171	67933	69982	66656	61245	65044	64515	62776	63294
59	60512	53555	57100	60179	61519	65333	66589	57418	61181	63923	62368	65691	65156	66228	68605	66409	68420	65156	59849	63575	63056	61350	61858
60	59071	52159	55679	58740	60073	63872	65124	55995	59737	62467	60918	64228	63695	64764	67135	64944	66950	63695	58411	62120	61603	59905	60410
61	57590	50392	54049	57244	58640	62632	63952	54378	58288	61153	59526	63007	62445	63572	66076	63762	65881	62445	56900	60788	60245	58464	58993
62	56026	48486	52306	55661	57131	61350	62749	52651	56760	59784	58066	61747	61152	62347	65007	62548	64798	61152	55299	59399	58825	56945	57503
63	54348	46482	50459	53966	55507	59944	61421	50818	55118	58296	56489	60363	59736	60996	63805	61207	63585	59736	53588	57890	57286	55313	55898
64	52534	44423	48516	52139	53734	58338	59873	48887	53331	56625	54751	58773	58121	59431	62356	59651	62126	58121	51748	56204	55578	53532	54139
65	50565	42353	46492	50164	51783	56463	58026	46867	51374	54721	52816	56906	56243	57576	60556	57800	60322	56243	49767	54293	53656	51578	52194
66	48309	40491	44434	47927	49466	53909	55391	44791	49077	52256	50447	54329	53700	54964	57789	55177	57567	53700	47550	51850	51245	49271	49856
67	45925	38632	42315	45571	47002	51128	52502	42648	46641	49594	47914	51517	50934	52106	54722	52304	54517	50934	45219	49217	48655	46821	47365
68	43460	36748	40143	43135	44448	48225	49480	40449	44117	46822	45284	48581	48048	49119	51506	49300	51320	48048	42812	46477	45963	44282	44781
69	40963	34809	37925	40665	41865	45312	46455	38206	41563	44033	42629	45636	45150	46126	48298	46291	48129	45150	40370	43718	43249	41713	42169
70	38480	32790	35673	38205	39313	42494	43548	35933	39034	41314	40019	42793	42345	43245	45247	43397	45091	42345	37932	41024	40591	39173	39594

71	36175	30467	33348	35897	37018	40254	41332	33609	36735	39051	37734	40560	40102	41022	43076	41178	42915	40102	35621	38756	38315	36876	37303
72	33929	28110	31035	33644	34797	38147	39269	31301	34506	36898	35536	38465	37989	38946	41090	39108	40923	37989	33360	36592	36136	34651	35091
73	31737	25790	28767	31443	32632	36102	37270	29039	32331	34805	33395	36432	35938	36933	39171	37101	38996	35938	31152	34488	34015	32481	32935
74	29589	23576	26578	29290	30499	34041	35237	26853	30193	32715	31276	34379	33873	34891	37187	35064	37007	33873	28994	32391	31909	30346	30808
75	27475	21536	24497	27179	28376	31888	33075	24769	28073	30573	29146	32223	31721	32732	35012	32903	34833	31721	26886	30251	29773	28224	28682
76	25271	20165	22729	25020	26034	28977	29962	22963	25778	27880	26682	29256	28838	29678	31561	29820	31414	28838	24771	27610	27210	25905	26292
77	23137	18847	21021	22930	23765	26155	26945	21217	23554	25270	24296	26379	26044	26718	28216	26832	28099	26044	22724	25051	24726	23660	23977
78	21081	17581	19376	20915	21579	23440	24043	19535	21412	22756	21996	23612	23354	23871	25001	23957	24913	23354	20751	22587	22333	21495	21745
79	19108	16369	17796	18983	19483	20845	21274	17921	19358	20352	19794	20968	20784	21152	21940	21213	21880	20784	18858	20228	20042	19420	19607
80	17227	15209	16286	17139	17486	18386	18654	16377	17400	18068	17697	18464	18347	18579	19054	18617	19019	18347	17051	17987	17864	17443	17571
81	15442	14102	14847	15389	15595	16075	16199	14907	15545	15915	15715	16112	16056	16166	16363	16183	16350	16056	15335	15873	15807	15570	15644
82	13759	13048	13481	13737	13815	13923	13922	13512	13798	13902	13853	13925	13921	13924	13883	13923	13888	13921	13715	13894	13879	13807	13832
83	12181	12047	12189	12188	12153	11938	11832	12194	12163	12036	12119	11910	11951	11864	11625	11848	11646	11951	12194	12057	12086	12158	12140
84	10712	11097	10974	10744	10610	10126	9935	10955	10646	10322	10515	10074	10152	9991	9598	9964	9631	10152	10774	10368	10433	10628	10573
85	9354	10199	9835	9406	9190	8491	8236	9795	9246	8763	9045	8420	8526	8310	7804	8273	7845	8526	9457	8828	8923	9218	9133
86	8107	9351	8773	8176	7893	7032	6734	8715	7966	7360	7709	6948	7074	6819	6242	6776	6288	7074	8244	7439	7556	7930	7820
87	6971	8553	7786	7053	6720	5748	5424	7713	6804	6110	6507	5656	5794	5516	4904	5470	4952	5794	7135	6199	6332	6762	6635
88	5944	7803	6876	6036	5667	4632	4300	6790	5760	5011	5435	4537	4680	4394	3780	4347	3827	4680	6127	5106	5247	5713	5574
89	5024	7101	6039	5122	4732	3677	3351	5944	4829	4057	4490	3583	3724	3442	2853	3396	2898	3724	5220	4152	4297	4780	4635
90	4208	6445	5274	4308	3909	2872	2564	5172	4009	3238	3667	2783	2917	2650	2106	2606	2147	2917	4410	3332	3474	3959	3812
91	3489	5833	4580	3590	3194	2205	1923	4473	3292	2547	2957	2122	2246	2001	1518	1961	1553	2246	3692	2636	2772	3243	3098
92	2864	5265	3952	2962	2579	1661	1412	3844	2673	1972	2354	1588	1698	1480	1065	1446	1095	1698	3062	2054	2180	2625	2488
93	2325	4738	3389	2419	2056	1227	1014	3281	2144	1501	1848	1164	1260	1072	727	1042	751	1260	2514	1575	1688	2100	1972
94	1866	4251	2887	1954	1618	888	710	2780	1699	1122	1429	834	915	758	481	733	500	915	2043	1186	1287	1658	1541
95	1480	3803	2443	1560	1256	628	485	2339	1328	823	1088	584	650	522	308	503	322	650	1642	878	964	1291	1187
96	1158	3392	2052	1230	960	433	321	1953	1024	592	815	399	451	350	191	335	201	451	1305	637	709	991	900
97	894	3015	1710	958	723	291	207	1618	777	416	600	265	305	228	113	217	120	305	1024	453	512	749	671
98	681	2671	1414	736	535	190	129	1329	581	286	433	171	201	144	65	136	69	201	794	315	362	557	492
99	511	2358	1160	557	389	121	78	1082	427	192	306	107	128	88	35	83	38	128	607	214	250	408	354
100	377	2075	944	416	278	74	45	873	308	125	212	65	79	52	18	48	20	79	457	141	169	293	250

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Table 11: *Estimated Values of l_x for 23 Districts of Assam for Female Population*

Age	Kokrajhar	Dhubri	Goalpara	Bongaigaon	Barpeta	Kamrup	Nalbari	Darang	Marigaon	Nagaon	Sonitpur	Lakhimpur	Dhemaji	Tinsukia	Dibrugarh	Sibsagar	Jorhat	Golaghat	Karbiangling	North Cachar	Cachar	Karimganj	Hailakandi
0	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000
1	93360	92800	93600	93880	94520	94880	95080	92640	94080	94360	93680	94440	94160	94320	94720	94360	94600	93960	92840	93280	94320	93600	93360
2	92403	91699	92705	93060	93903	94288	94412	91499	93314	93671	92807	93773	93416	93620	94076	93671	93795	93162	91749	92301	93620	92705	92403
3	91285	90470	91635	92046	93021	93474	93633	90239	92341	92755	91753	92874	92460	92696	93232	92755	92916	92165	90529	91168	92696	91635	91285
4	90116	89217	90502	90955	92013	92554	92802	88961	91280	91736	90632	91866	91411	91671	92291	91736	92014	91086	89281	89987	91671	90502	90116
5	88979	88016	89393	89877	90989	91617	91967	87742	90224	90710	89531	90849	90363	90641	91338	90710	91128	90016	88085	88841	90641	89393	88979
6	87936	86924	88371	88878	90027	90728	91163	86635	89241	89749	88515	89894	89386	89677	90434	89749	90289	89023	86996	87791	89677	88371	87936
7	87027	85977	87477	88002	89182	89931	90418	85677	88377	88902	87627	89051	88527	88827	89624	88902	89519	88152	86052	86877	88827	87477	87027
8	86275	85194	86738	87276	88485	89253	89750	84885	87661	88197	86891	88351	87814	88121	88936	88197	88832	87429	85271	86121	88121	86738	86275
9	85686	84580	86159	86709	87949	88703	89167	84263	87101	87648	86316	87804	87258	87570	88382	87648	88234	86865	84659	85529	87570	86159	85686
10	85254	84126	85736	86296	87569	88280	88674	83803	86695	87251	85896	87410	86854	87172	87964	87251	87727	86455	84207	85094	87172	85736	85254
11	84957	83808	85448	86018	87327	87967	88263	83479	86424	86989	85611	87151	86585	86909	87670	86989	87301	86180	83890	84794	86909	85448	84957
12	84777	83609	85276	85855	87198	87746	87934	83275	86268	86842	85441	87007	86432	86761	87486	86842	86956	86020	83693	84611	86761	85276	84777
13	84683	83498	85189	85777	87148	87589	87675	83159	86196	86780	85357	86947	86363	86697	87389	86780	86680	85944	83583	84515	86697	85189	84683
14	84639	83439	85152	85748	87137	87466	87471	83096	86173	86766	85322	86936	86342	86681	87350	86766	86460	85918	83525	84468	86681	85152	84639
15	84608	83394	85127	85731	87127	87348	87307	83047	86162	86764	85300	86936	86334	86678	87337	86764	86279	85904	83481	84435	86678	85127	84608
16	84500	83274	85024	85635	87000	87120	87139	82924	86071	86681	85199	86856	86246	86594	87288	86681	86095	85810	83362	84325	86594	85024	84500
17	84352	83116	84881	85499	86827	86870	86985	82763	85941	86559	85058	86736	86117	86471	87215	86559	85924	85676	83204	84175	86471	84881	84352
18	84152	82906	84687	85312	86604	86604	86834	82550	85758	86385	84865	86564	85937	86295	87098	86385	85757	85491	82995	83974	86295	84687	84152
19	83892	82634	84432	85064	86330	86328	86680	82276	85515	86150	84612	86332	85697	86059	86924	86150	85586	85245	82725	83712	86059	84432	83892
20	83565	82296	84111	84750	86007	86049	86512	81935	85207	85850	84293	86034	85391	85758	86679	85850	85402	84933	82387	83383	85758	84111	83565
21	83159	81876	83711	84358	85657	85841	86345	81511	84821	85473	83896	85659	85008	85380	86328	85473	85219	84544	81968	82975	85380	83711	83159
22	82689	81390	83248	83903	85260	85618	86141	81021	84372	85032	83434	85221	84560	84937	85903	85032	85000	84091	81483	82502	84937	83248	82689
23	82160	80847	82726	83389	84816	85361	85884	80473	83865	84533	82915	84724	84056	84437	85413	84533	84729	83580	80940	81972	84437	82726	82160
24	81583	80254	82155	82827	84324	85051	85563	79876	83308	83984	82347	84178	83501	83887	84867	83984	84393	83019	80348	81392	83887	82155	81583
25	80966	79622	81545	82224	83787	84672	85166	79240	82711	83395	81739	83591	82906	83297	84278	83395	83983	82419	79717	80773	83297	81545	80966
26	80337	78980	80922	81609	83204	84153	84648	78594	82101	82792	81118	82990	82298	82693	83683	82792	83452	81805	79076	80142	82693	80922	80337
27	79685	78315	80276	80968	82584	83561	84060	77926	81465	82163	80473	82363	81664	82063	83063	82163	82852	81167	78412	79488	82063	80276	79685
28	79013	77633	79609	80308	81936	82912	83416	77240	80809	81514	79809	81715	81010	81412	82422	81514	82196	80508	77730	78815	81412	79609	79013
29	78329	76938	78930	79634	81266	82223	82733	76543	80138	80849	79131	81052	80341	80747	81766	80849	81503	79836	77037	78129	80747	78930	78329
30	77638	76238	78243	78952	80586	81514	82032	75840	79460	80176	78445	80381	79664	80073	81101	80176	80792	79155	76337	77437	80073	78243	77638
31	76904	75497	77512	78224	79865	80792	81312	75098	78735	79454	77715	79660	78940	79351	80384	79454	80066	78428	75597	76702	79351	77512	76904
32	76191	74777	76802	77518	79167	80097	80621	74376	78032	78755	77006	78962	78238	78651	79690	78755	79366	77723	74878	75988	78651	76802	76191
33	75521	74098	76135	76855	78516	79453	79981	73695	77373	78101	76340	78310	77580	77996	79043	78101	78718	77062	74199	75316	77996	76135	75521
34	74909	73475	75529	76255	77931	78880	79413	73069	76777	77512	75735	77722	76986	77406	78462	77512	78138	76463	73577	74703	77406	75529	74909
35	74370	72921	74996	75730	77427	78392	78931	72511	76258	77001	75205	77214	76470	76894	77962	77001	77641	75941	73024	74162	76894	74996	74370
36	74035	72562	74672	75419	77147	78130	78679	72145	75957	76713	74885	76930	76173	76604	77692	76713	77365	75634	72667	73824	76604	74672	74035
37	73737	72236	74386	75148	76910	77913	78474	71812	75696	76467	74603	76689	75916	76357	77467	76467	77132	75367	72343	73522	76357	74386	73737
38	73430	71900	74092	74869	76668	77693	78265	71467	75428	76216	74313	76442	75653	76103	77236	76216	76895	75092	72008	73210	76103	74092	73430
39	73067	71508	73743	74536	76371	77417	78003	71067	75106	75909	73968	76141	75336	75794	76952	75909	76603	74763	71619	72843	75794	73743	73067
40	72609	71022	73297	74105	75976	77043	77640	70573	74686	75505	73527	75741	74920	75388	76568	75505	76212	74337	71134	72381	75388	73297	72609
41	71828	70223	72524	73342	75236	76316	76921	69770	73930	74759	72757	74998	74166	74640	75835	74759	75475	73577	70337	71598	74640	72524	71828
42	70959	69337	71663	72490	74406	75500	76113	68879	73085	73924	71898	74165	73324	73804	75013	73924	74648	72728	69452	70726	73804	71663	70959

43	70050	68409	70762	71599	73541	74649	75271	67945	72202	73052	71000	73297	72444	72930	74155	73052	73786	71840	68525	69814	72930	70762	70050
44	69151	67487	69874	70723	72695	73821	74452	67018	71335	72198	70115	72446	71581	72074	73319	72198	72944	70968	67605	68912	72074	69874	69151
45	68311	66618	69046	69911	71919	73067	73711	66141	70534	71413	69292	71666	70784	71287	72555	71413	72173	70160	66738	68067	71287	69046	68311
46	67775	66034	68531	69422	71491	72675	73339	65544	70064	70969	68785	71230	70321	70839	72147	70969	71753	69678	66158	67524	70839	68531	67775
47	67301	65509	68080	68998	71132	72355	73041	65005	69660	70594	68341	70863	69925	70460	71809	70594	71402	69262	65636	67042	70460	68080	67301
48	66844	65001	67645	68591	70790	72051	72759	64483	69272	70235	67914	70512	69546	70097	71488	70235	71069	68863	65132	66578	70097	67645	66844
49	66355	64466	67178	68149	70408	71704	72433	63934	68848	69838	67454	70122	69130	69695	71126	69838	70694	68428	64600	66082	69695	67178	66355
50	65789	63860	66629	67621	69931	71258	72004	63318	68336	69348	66911	69639	68624	69202	70666	69348	70224	67906	63997	65510	69202	66629	65789
51	64920	62976	65767	66768	69099	70439	71192	62430	67489	68510	66052	68804	67779	68363	69841	68510	69394	67055	63114	64639	68363	65767	64920
52	63961	62010	64812	65817	68160	69507	70265	61462	66542	67568	65098	67863	66833	67420	68906	67568	68457	66106	62149	63679	67420	64812	63961
53	62947	60993	63800	64807	67157	68509	69270	60444	65534	66563	64087	66860	65826	66415	67905	66563	67455	65097	61132	62665	66415	63800	62947
54	61917	59960	62771	63781	66138	67495	68258	59410	64510	65542	63059	65839	64803	65394	66889	65542	66437	64071	60098	61634	65394	62771	61917
55	60907	58943	61765	62779	65148	66513	67281	58392	63512	64549	62054	64848	63806	64400	65903	64549	65449	63071	59082	60623	64400	61765	60907
56	60082	58103	60947	61969	64359	65737	66512	57548	62709	63755	61238	64056	63005	63604	65121	63755	64663	62264	58243	59796	63604	60947	60082
57	59292	57287	60169	61205	63631	65029	65817	56725	61955	63017	60464	63323	62256	62864	64404	63017	63939	61504	57429	59002	62864	60169	59292
58	58512	56469	59407	60465	62943	64373	65180	55896	61231	62315	59708	62628	61538	62160	63734	62315	63258	60770	56612	58216	62160	59407	58512
59	57713	55616	58632	59720	62270	63744	64576	55029	60507	61623	58942	61946	60824	61463	63084	61623	62595	60034	55764	57409	61463	58632	57713
60	56863	54699	57812	58937	61578	63107	63971	54094	59752	60908	58132	61242	60080	60742	62423	60908	61915	59262	54851	56549	60742	57812	56863
61	55785	53515	56781	57963	60739	62348	63257	52881	58819	60035	57117	60386	59164	59860	61628	60035	61094	58305	53675	55456	59860	56781	55785
62	54637	52262	55681	56919	59834	61525	62481	51600	57818	59094	56033	59463	58180	58911	60768	59094	60206	57278	52429	54293	58911	55681	54637
63	53431	50966	54516	55805	58843	60610	61609	50279	56741	58071	54882	58456	57118	57880	59819	58071	59232	56178	51139	53073	57880	54516	53431
64	52171	49643	53285	54610	57742	59567	60602	48941	55573	56945	53661	57343	55963	56748	58750	56945	58144	54994	49821	51803	56748	53285	52171
65	50847	48299	51973	53314	56491	58349	59403	47592	54290	55682	52353	56086	54685	55482	57517	55682	56900	53703	48478	50476	55482	51973	50847
66	49972	47485	51081	52407	55579	57454	58523	46799	53377	54768	51456	55173	53771	54568	56613	54768	55991	52793	47658	49609	54568	51081	49972
67	48799	46421	49865	51146	54231	56069	57122	45769	52086	53439	50226	53834	52468	53244	55243	53439	54633	51520	46586	48450	53244	49865	48799
68	47115	44892	48114	49316	52218	53952	54947	44284	50200	51472	48453	51844	50559	51288	53173	51472	52597	49667	45046	46788	51288	48114	47115
69	44733	42703	45641	46730	49343	50894	51782	42145	47528	48673	45949	49008	47851	48508	50198	48673	49683	47047	42844	44436	48508	45641	44733
70	41511	39702	42306	43249	45464	46749	47475	39197	43932	44902	42574	45183	44207	44763	46175	44902	45747	43521	39829	41249	44763	42306	41511
71	36186	34630	36830	37562	39144	39973	40412	34174	38071	38761	37042	38954	38270	38665	39611	38761	39332	37767	34744	35969	38665	36830	36186
72	30317	29016	30803	31312	32214	32546	32671	28606	31635	32024	30956	32123	31753	31974	32415	32024	32299	31445	29116	30145	31974	30803	30317
73	24327	23268	24662	24955	25189	25030	24844	22899	25095	25190	24757	25195	25134	25185	25128	25190	25173	25018	23356	24199	25185	24662	24327
74	18656	17809	18857	18957	18599	18002	17538	17477	18937	18769	18901	18691	18906	18804	18305	18769	18493	18959	17886	18566	18804	18857	18656
75	13718	13042	13813	13763	12941	12002	11320	12741	13616	13244	13817	13101	13530	13310	12464	13244	12764	13716	13110	13659	13310	13813	13718
76	12524	11850	12637	12620	11929	11095	10482	11561	12506	12193	12649	12068	12435	12249	11508	12193	11773	12586	11916	12462	12249	12637	12524
77	11369	10701	11496	11511	10942	10209	9661	10424	11427	11168	11516	11062	11370	11216	10574	11168	10806	11487	10765	11304	11216	11496	11369
78	10258	9600	10397	10439	9985	9347	8862	9337	10383	10176	10423	10086	10339	10215	9667	10176	9868	10426	9662	10191	10215	10397	10258
79	9196	8553	9345	9411	9061	8513	8087	8304	9379	9219	9376	9145	9348	9251	8790	9219	8962	9406	8612	9128	9251	9345	9196
80	8187	7564	8343	8429	8174	7710	7340	7329	8420	8302	8379	8243	8399	8327	7947	8302	8092	8433	7620	8119	8327	8343	8187
81	7236	6637	7396	7499	7328	6942	6624	6417	7509	7429	7436	7383	7497	7448	7142	7429	7262	7510	6689	7168	7448	7396	7236
82	6346	5775	6508	6623	6527	6211	5941	5570	6650	6603	6550	6569	6646	6616	6377	6603	6474	6640	5824	6280	6616	6508	6346
83	5520	4980	5680	5805	5773	5520	5295	4791	5845	5827	5724	5804	5849	5835	5655	5827	5732	5826	5025	5455	5835	5680	5520
84	4759	4254	4916	5046	5068	4872	4686	4081	5097	5103	4961	5089	5107	5107	4979	5103	5038	5072	4296	4698	5107	4916	4759
85	4065	3597	4217	4349	4414	4268	4118	3441	4408	4433	4261	4427	4422	4434	4351	4433	4394	4377	3635	4007	4434	4217	4065
86	3438	3009	3583	3714	3813	3709	3591	2869	3778	3818	3626	3819	3796	3817	3771	3818	3801	3743	3043	3384	3817	3583	3438
87	2877	2489	3013	3141	3264	3197	3106	2365	3208	3259	3054	3265	3228	3255	3241	3259	3259	3171	2519	2827	3255	3013	2877
88	2381	2033	2507	2629	2768	2731	2663	1924	2696	2755	2545	2765	2717	2750	2760	2755	2768	2659	2060	2336	2750	2507	2381
89	1947	1640	2062	2176	2325	2311	2263	1546	2242	2305	2098	2318	2264	2299	2327	2305	2329	2205	1663	1907	2299	2062	1947

90	1573	1305	1675	1780	1932	1937	1905	1224	1844	1908	1708	1923	1865	1901	1943	1908	1939	1808	1324	1536	1901	1675	1573
91	1253	1023	1343	1439	1587	1606	1587	955	1498	1562	1373	1577	1519	1554	1604	1562	1596	1464	1039	1221	1554	1343	1253
92	984	789	1063	1147	1289	1316	1307	733	1202	1262	1089	1278	1221	1255	1310	1262	1299	1171	803	957	1255	1063	984
93	761	599	828	902	1033	1066	1065	553	951	1007	851	1022	969	1000	1056	1007	1044	923	610	738	1000	828	761
94	580	447	636	699	818	853	857	410	742	793	655	807	758	787	841	793	828	717	456	561	787	636	580
95	434	327	480	533	638	674	681	298	570	615	496	628	584	609	660	615	648	549	334	418	609	480	434
96	319	235	356	400	490	524	534	212	431	470	369	481	443	465	511	470	499	413	240	306	465	356	319
97	230	165	259	295	371	402	412	148	321	353	270	363	330	349	389	353	379	306	169	220	349	259	230
98	162	113	185	213	276	304	314	100	234	261	193	269	242	257	292	261	283	222	116	155	257	185	162
99	112	76	129	151	201	225	235	67	167	189	136	196	174	186	215	189	207	158	78	106	186	129	112
100	76	49	89	105	144	164	173	43	117	134	93	140	122	132	156	134	149	110	51	71	132	89	76