Batch 2 (2006-2007)					*Batch 4 (2008-2009)*				
$p_{i,i+1(t)}$	0.717	0.897	0.892	0.971	$p_{i,i+1(t)}$	0.75	0.951	0.961	0.978
$p_{i,i(t)}$	0.242	0.091	0.096	0.029	$p_{i,i(t)}$	0.193	0.04	0.024	0.022
$p_{i,o(t)}$	0.042	0.011	0.013	0	$p_{i,o(t)}$	0.057	0.009	0.015	0
$\sum_{i\in s} p_{ij}$	1	1	1	1	$\sum_{i\in s} p_{ij}$	1	1	1	1

4.2 The calculation of the rows of matrices will be as follow

1- Batch1) matrix

$$P=\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0.046 & 0.46 & 0.493 & 0 & 0 & 0 \\ 0 & 0 & 0.062 & 0.914 & 0 & 0 \\ 0.02 & 0 & 0 & 0.066 & 0.914 & 0 \\ 0 & 0 & 0 & 0 & 0.05 & 0.95 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

2- Batch2 matrix

$$P=\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0.042 & 0.242 & 0.717 & 0 & 0 & 0 \\ 0.011 & 0 & 0.091 & 0.897 & 0 & 0 \\ 0.013 & 0 & 0 & 0.096 & 0.892 & 0 \\ 0 & 0 & 0 & 0 & 0.029 & 0.971 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

3-Batch3 matrix

$$P=\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0.065 & 0.152 & 0.783 & 0 & 0 & 0 \\ 0 & 0 & 0.039 & 0.961 & 0 & 0 \\ 0.023 & 0 & 0 & 0.144 & 0.833 & 0 \\ 0 & 0 & 0 & 0 & 0.076 & 0.924 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

4-Batch4 matrix

$$P=\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0.057 & 0.193 & 0.750 & 0 & 0 & 0 \\ 0.009 & 0. & 0.040 & 0.951 & 0 & 0 \\ 0.015 & 0 & 0 & 0.024 & 0.961 & 0 \\ 0 & 0 & 0 & 0 & 0.022 & 0.978 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

4.3 Prediction of Gradations

In order to estimate the situation of student throughout the year of study and to predict the number of students after four years should follow 3 steps:

1- multiply the probability of student at the beginning of the year (t).those Xi(t) with p_{15}^4 from matrix but there are four state for each student that (gradation ,withdrawn , third level ,or fourth level) then the result being as: $p_{15}^4 * \frac{X_1(t)}{4}$ ……(4-4)

Secondly: in the second level after four years the student has three chances (graduation ,withdrawal ,or fourth level) then the result :

$p_{25}^4 * \frac{X\,2(t)}{3}$ …….. (4-5)

Thirdly: in the third level after four years the student has two chances (graduation, withdrawal) then the result:

$p_{35}^4 * \frac{X\,2(t)}{2}$ ……(4-6)

Fourthly: the total of above results is Number of students who graduated from the faculty after 4 yeas). $G_n(t)$.

Table 3.The table represents the expected graduate student after four years

Batches	1	2	3	4
$G_4(batch)$	152	172	176	223
Graduates%	54%	76%	81%	80%

From the table (3) we notice that the percentage of graduation after four years was very low in the first Batch 54% but there was gradual increasing in percentage through batches reach up to 80%

Table 4: Students who promoted without delay, the withdrawn, and remain students in the (1st ,2nd , 3rd&4th class) after four years

	Withdrawn	1st level	2nd level	3rd level	4th level	B*	Total
Second raw of P^4	0.095	0.07	0.055	0.128	0.262	0.391	1
No. of students in Batch1	27	20	15	36	74	110	282
Second raw of P^4	0.078	0.003	0.017	0.085	0.265	0.557	1
Students of Batch2	18	1	4	19	60	126	228
Second raw of P^4	0.1	0.001	0.004	0.059	0.258	0.579	1
Students of Batch3	22	0	1	13	56	126	217
Second raw of P^4	0.093	0.002	0.007	0.037	0.191	0.67	1
Students of Batch4	26	1	2	10	53	188	280

From the table (4)the column B* represents the prediction of students who graduate without delay after they spending four years among the batches so the follow-up the fluctuation of student becomes clear. for example in the ratio of batch1 (0.095, 0.07, 0.055, 0.128 and 0.262) and only 110 students have been graduated. For further details of student ratio of delaying we can construct a table from equations:

$\frac{B^*}{G_4(bach)}$ = the ratio of graduate student without delay ….(4-7)

$\frac{B^*}{B_4(t)}$ = the ratio of graduate students of those from beginning of the year (t).(4-8)

Table 5: Students graduate and ratio of delaying

	B^*	$B_{(t)}$	$G_4(batch)$	$\frac{B^*}{G_4(bach)}$	Delay Ratio B*	$\frac{B^*}{B_4(t)}$	Delay Ratio
Batch1	110	282	152	72%	28%	39%	61%
Batch2	126	228	172	73%	27%	55%	45%
Batch3	126	217	176	71%	29%	58%	42%
Batch4	188	280	223	84%	16%	67%	33%

From the table 5.the ratio of graduated students (without delaying) of the predicted number is high (72, 73, 71, 84,) compared with the ratio of graduated students (without delaying) of the total student number at the beginning of year.

The system of Faculty of Education besides the delaying students and some students who have dismissed in batches form the table 6.below we find high in batch (1and3) 10%,10% respectively.

Table 6: The dismissed student after four years

	Total st. in beginning of year	*The ratio*	*No. of lost st.*
Batch1	282	10%	27
Batch2	228	8%	18
Batch3	217	10%	22
Batch4	280	11%	31

4.3 Evaluations of Data

In order to estimate whether the estimate for the transition probability matrix over period of four years it remains constant. This was investigated by setting up the hypothesis.

$H_\circ : P_{ij}(t) = P_{ij}$ t = 0.1.2.3

$H_1 : P_{ij}(t)$ is different for each t = 0.1.2.3

Then we can test the significances by the mean absolute error (MAE) . by using the variation between different groups the actual and predicted, so that we use the F. test such that:

$$F = \frac{\max S_i^2}{\min S_i^2}$$

Table 7: The predicted & actual number of graduate's students over batches

Batches	*1*	*2*	*3*	*4*	S_i^2
The predicted graduate	152	172	176	223	903.6
The actual graduate	132	136	134	184	627.7

Then the calculated value of test is: S^2_{actual} = 627.7 and the $S^2_{predicted}$ = 903.6

Hence the data is compatible with the null hypothesis at (α = 0.5%) .

5. Conclusions

The model of Markov Chain has homogeneous probability transition matrix according to fitted test. Then the model has been compatible to estimation of graduate students compared with the intake students in duration of university study throughout the batches. So that from the study there is very low ratio of graduation student 54% of batch1 because there is high delaying in the first level the probability of repeated student is 0.46. But at other levels (2, 3, 4) low delaying probability of repeating (0.062,0.066,0.05) and withdrawals probability (0, .002, 0) respectively, so that 39 % of total registered students this ratio is very low to satisfy the needs of schools in fact the majority of the graduates are teachers brought from schools to be qualified. In the batches (2,3,4) the predicted graduates after four years have been increased gradually (76%,81%,80%).we conclude that, the reasons are , the students were taken from General Intake Office ,in the first year the college was not completely separated of the university, the academic atmosphere was not good enough and libraries were not habilitated besides the shortage of lectures.

The ratio of delaying seems to be decreasing all over the batches (61%, 45%, 42%, 33%). Referring to the certain procedures applied in the faculty, the ratio of missed students (10%,8%,10% and 11%) in spite of decreasing of delaying students, but the missed students increasing all over the batches , because of severe academic rules of cheating cases.

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