UNIVERSITY OF ASIA PACIFIC
DEPT OF CSE

18101009
HASAN TAHSIN RAFSAN
4TH YEAR
1ST SEMESTER
A SECTION
CLASS TEST
CSE 401

D1: Hidden

Id: 18101009 which is odd. So, Rainy

last dig.

D1: observe.

~~last child mod 3 = 18101009 % 3 = 2 , so, stop.~~

last dig mod 3 = 9 mod 3 = 0, so, walk

D2: Hidden

sec last dig = 0, ~~so,~~ even, so, ~~Rainy,~~

sunny

D2: Observe.

2nd last mod 3 = 0 mod 3 = 0, so, walk
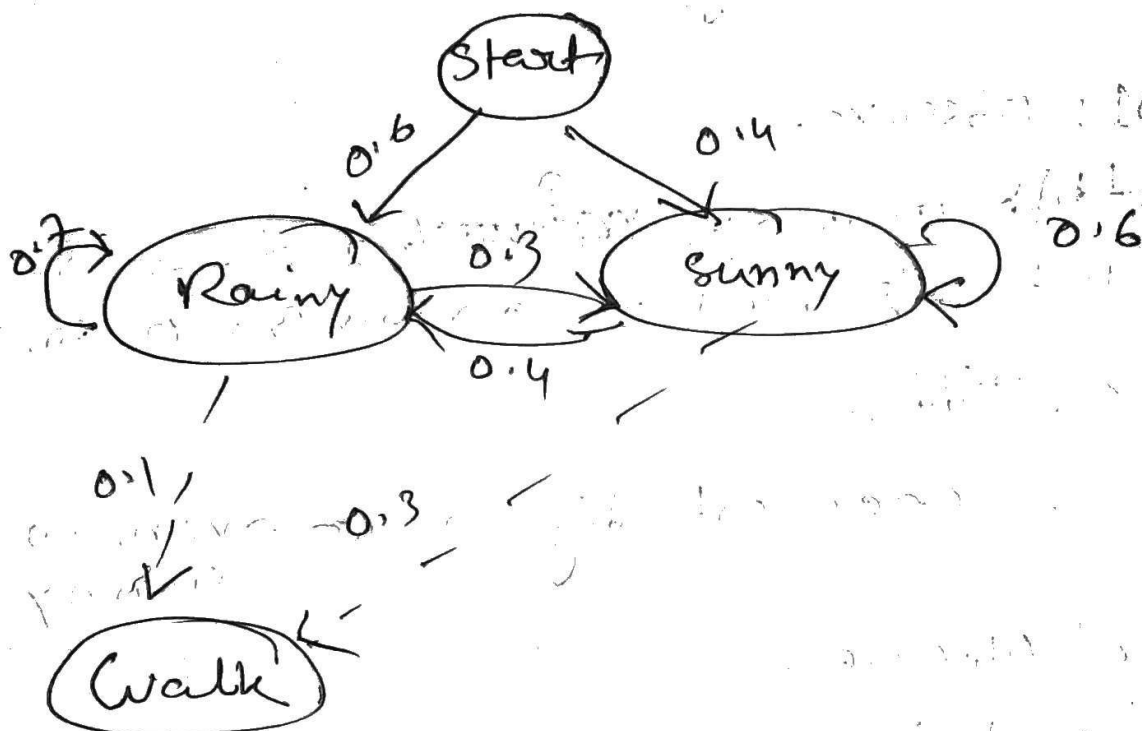
D3: Hidden

3rd last dig = 0, even, sunny.

D3: observe

3rd last mod 3 = 0 mod 3 = 0, So, walk.

28/09/009

So,

Start

0.6   0.4

0.2 → Rainy   0.3   Sunny   0.6
          0.4

0.1   0.3

Walk

18101009

Transition Matrix

$$A = \begin{array}{c c} & \begin{array}{c c} R & S \end{array} \\ \begin{array}{c} R \\ S \end{array} & \begin{bmatrix} 0.7 & 0.3 \\ 0.4 & 0.6 \end{bmatrix} \end{array}$$

~~Esti~~ Emission Matrix

~~vel~~

$$\begin{array}{c c c} & \begin{array}{c c c} W & S & C \end{array} \\ \begin{array}{c} R \\ S \end{array} & \begin{bmatrix} 0.1 & 0.4 & 0.5 \\ 0.6 & 0.3 & 0.1 \end{bmatrix} \end{array}$$

Now. we have to determine

$$D1 \rightarrow D2 \rightarrow D3 \dots$$

So, ~~weather~~ ~~walk~~ ~~walk~~

weather = x

Rainy $\longrightarrow$ Sunny $\longrightarrow$ Sunny

$\downarrow$ $\downarrow$ $\downarrow$

walk   walk   walk

motion ~~Parade~~ = y

$P(Y = W \to W \to W, X = R \to S \to S)$

~~$P(X_1 = R)$~~

$P(X_1 = R) * P(Y_1 = W \mid X_1 = R) *$

$* P(X_2 = S \mid X_1 = R) * P(Y_2 = W \mid X_2 = S)$

$* P(X_3 = S \mid X_2 = S) * P(Y_3 = W \mid X_3 = S)$

So, here.

$P(X_1 = R) * 0.1 * 0.3 * 0.3 * 0.6 * 0.3$

Now,

$P(X_1 = R)$