**MAT1372**

**Project #5**

**Due Date: Tuesday, April 8, 2014**

**Maximum points on this project: 12 points**

Submit **one** EXCEL file: FirstName LastName-Project 5-MAT1372-Sp2014

Submit by the due date to: shan@citytech.cuny.edu

To get full credits for the project, you must:

1. Turn in the project on time. One point will be deducted for “each day” (including weekends and holidays) that the project is late.
2. State the goal (or the problem) of the project.
3. State the process, including EXCEL commands used.
4. State the results.

Playing the PLINKO game

The player drops a chip from any one of the 9 slots. The pegs send the chip bouncing all over the board until it lands in the slot representing the money amounts at the bottom.

 

 

1. Translate the Plinko board above into Excel spread sheet. For each cell, enter the correct conditional probability which involves the probabilities of the cells immediately preceding the current cell.
2. Find the probabilities of each outcome when the chip is released from various slots. (See the table below)
3. Find the expected winning of each slot where the chip is released. Show computations.

Probabilities that the chip will land on $100, $500, $1000, $0, $5000 when the chip is released from slot 1, slot 2, slot3, … slot 9:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | Land on |  |  |  |  |  |
| From | $100 | $500 | $1,000 | $0 | $5,000 | $0 | $1,000 | $500 | $100 |
| slot 1 | 0.226 | 0.387 | 0.242 | 0.107 | 0.032 | 0.006 | 0.000 | 0.000 | 0.000 |
| slot 2 | 0.193 | 0.346 | 0.247 | 0.137 | 0.057 | 0.016 | 0.003 | 0.000 | 0.000 |
| slot 3 | 0.121 | 0.247 | 0.242 | 0.196 | 0.121 | 0.054 | 0.016 | 0.003 | 0.000 |
| slot 4 | 0.054 | 0.137 | 0.196 | 0.226 | 0.193 | 0.121 | 0.054 | 0.016 | 0.003 |
| slot 5 | 0.016 | 0.057 | 0.121 | 0.193 | 0.226 | 0.193 | 0.121 | 0.057 | 0.016 |
| slot 6 | 0.003 | 0.016 | 0.054 | 0.121 | 0.193 | 0.226 | 0.196 | 0.137 | 0.054 |
| slot 7 | 0.000 | 0.003 | 0.016 | 0.054 | 0.121 | 0.196 | 0.242 | 0.247 | 0.121 |
| slot 8 | 0.000 | 0.000 | 0.003 | 0.016 | 0.057 | 0.137 | 0.247 | 0.346 | 0.193 |
| slot 9 | 0.000 | 0.000 | 0.000 | 0.006 | 0.032 | 0.107 | 0.242 | 0.387 | 0.226 |