Name(s) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| *n* | points |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |
| 9 |  |
| 10 |  |

**BA 353: Business Analytics In Class Exercise (ICE) 1**

1) You should have already downloaded a silly game app called either “Crush Eggs” or “Bubble Breaker.” Play the game for a while (“Classic” version) and keep track of how many points you earn for each set of bubbles popped – the points increase, ***non-linearly***, as the number of bubbles increases. Fill in the table on the right with how many points each group is worth.

2) Is it too tricky to get 9 or 10 bubbles together to fill in the last couple of numbers? Good. Determine the formula that the game is using and use it instead. The formula for how many points you will earn *p* depending on how many adjacent bubbles *n*, *p = f(n)*. What function determines points based on bubbles? Fill it in below.

3) Open the “Bubbles Data” file from the course webpage – there is information on scoring for several of these apps. Figure out the pattern/formula now for the “Bubble Poke” game in column C of the spreadsheet. What is that formula?

4) The app called “Mazu Bubble” is only available for Android (if you can find it for iPhone please let me know!). The previous two apps had *quadratic* scoring, but this one is even fancier. Use the data in column D and sleuth out the pattern for this game. Insert a scatter diagram of Column A versus Column D and look for the Mazu Bubble scoring pattern. Use MS Excel to make it look nice and print and attach the graph to this assignment. This is an example of *descriptive analytics*.

5) Now, the fun/hard part. There is a formula for how many points you earn. Figure out what it is. Use MS Excel curve-fitting functions to determine the formula for Mazu Bubble. Ask me for help if you are unsure how to do this part. What is the formula?

|  |  |
| --- | --- |
| *n* | points |
| 11 |  |
| 12 |  |
|  |  |
|  | 212,344 |

6) Using the formula above, predict how many points *n* = 11 and 12 will be worth and then confirm your hypothesis by playing the game. This is an example of *predictive analytics*. Second, take some time and pop a huge number of bubbles (n > 25) and record *n* and how many points it’s worth in the grey cells. Confirm that this matches with the formula above.

7) My record for points on a single play is 212,344. How many bubbles did I pop in one group? (Don’t judge me – I was stuck in an airport.)

8) Since the points are non-linear, is it better to pop, say, two smaller groups of 15 or one big group of 30? Is the better choice slightly better or way better? (This is highly technical analytics terminology.)

9) Given your answer to 8) what might be the best strategy to score the most points in a game? This is an example of *prescriptive analytics*. In fact, **analytics is the scientific process of transforming data into insight for making better decisions** – use the information from above to develop the best strategy you can in order to maximize the points you will earn in a game. Describe your strategy in detail below.

Extra Credit)

Download the app called “Bubble Explode” – I think this is available for both Android and iPhone. Track the scoring for the number of bubbles popped for at least up to 10 (I’ve given you the first three on the spreadsheet). Figure out the *exact* formula for this game – something previous classes and I have failed to do so far but I am convinced it exists!!! You’ll be able to find a very close approximate formula but the exact one so far is elusive.