# **Project 2 Extra Credit**

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**Section: M013**

**Group Number: Project 2 Group 2**

**Simulation Values with t = 1000**

|  |  |
| --- | --- |
| **e-Value** | **Average Happiness** |
| 34 | 3023.3821 |
| 2 | 3015.7186 |
| 20 | 3084.6646 |
| 15 | 3045.9458 |
| 29 | 3066.1468 |

**Comments on Results and Why You Chose Those e-Values**

* **How I chose the 5 e values:**

I defined a function bestevalue() which runs a loop from e=1 to e=100 and picks the e value that gives the highest total happiness. Then, I defined another function best\_5\_e\_values() which calls the bestevalue() function within itself and outputs a list of 5 best e values with the highest total happiness.

* **How I ran the simulations:**

I used the Simulation() function from the original project which only took in e as an input parameter and number of trials t set to 1000. I used it to calculate the average eGreedy Sum value for each e, called avgEGreedySum. Then, I defined a new function called new\_simulation() which calls the Simulation() function 5 times and runs it on each e value that we generated using the best\_5\_e\_values() function to return a list with the best 5 happiness values.

* **Observations and conclusions based on table:**

I observed that the highest happiness value was obtained for e=20. The second highest was 29, then 15 and so on. This means that the happiness value is the closest to the optimum happiness when e≈20 and tapers off subsequently as e gets away from 20.