Part B)

Tested Batch 1 with the following data

Batch 1:

T = 0.25, K = 65, sig = 0.30, r = 0.08, S = 60(then C = 2.13337, P = 5.84628).

|  |  |  |  |
| --- | --- | --- | --- |
| NSIM | NT | CAll | PUT |
| 100 | 100000 | 2.13043 | 5.87321 |
| 100 | 150000 | 2.13831 | 5.85021 |
| 100 | 130930 | 2.13343 | 5.86456 |
| 250 | 100000 | 2.16636, | 5.85382 |
| 500 | 26000 | 2.14151 | 5.8924 |
|  |  |  |  |

Tested Batch 2 With the Following data

Batch 2:

T = 1.0, K = 100, sig = 0.2, r = 0.0, S = 100 (then C = 7.96557, P = 7.96557).

|  |  |  |  |
| --- | --- | --- | --- |
| NSIM | NT | CAll | PUT |
| 100 | 100000 | 7.94362 | 8.0079 |
| 100 | 150000 | 7.97081 | 7.97154 |
| 100 | 130930 | 7.95461 | 7.9938 |
| 250 | 100000 | 8.0538 | 7.99155 |
| 500 | 26000 | 7.97656 | 8.05434 |

As one can see that the accuracy is not dependent on one variable. In fact, the accuracy of the option price is dependent both the proportionality of NSIM and NT. Where accuracy is dependent on NT and NSIM. That means if the total NT and NSIM is too high then the option price is not accurate.

Suppose we had a very close estimation of Option prices with the proper NT and NSIM. If on the next test that NT is raised higher then NSIM needs to be lowered in order to get accurate option price. And likewise, for NSIM. The best numbers I have found are found was when NSIM = 100 and NT = 130930.

Part C)

Test Batch 4)

T = 30.0, K = 100.0, sig = 0.30, r = 0.08, S = 100.0 (C = 92.17570, P = 1.24750).

|  |  |  |  |
| --- | --- | --- | --- |
| NSIM | NT | CAll | PUT |
| 100 | 100000 | 89.4248 | 1.29604 |
| 100 | 150000 | 89.5599 | 1.28795 |
| 100 | 190000 | 89.4228 | 1.29036 |
| 250 | 89000 | 92.2866 | 1.27049 |
| 1100 | 98500 | 92.5482 | 1.26529 |

In this case if NSIM is too low than we must increase NT drastically. Batch 4 was more sensitive to NSIM than batches 1 and 2) and just raising was not sufficient to create an accurate option price. The best result I have obtain 89000 NT and NSIM for 250.