MA374 Financial Engineering lab:02

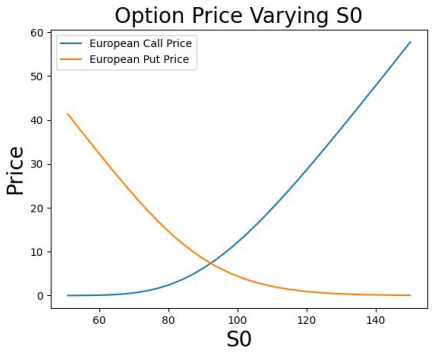
Name: **Naman Goyal**
Roll No. **180123029**

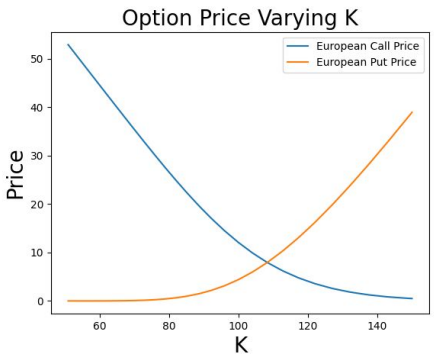
Ques.1

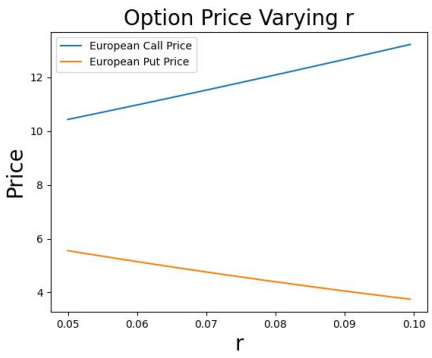
- To execute my .py file
  Run **$python3 180123029_NamanGoyal_q1.py** on the terminal. The snapshot is given below

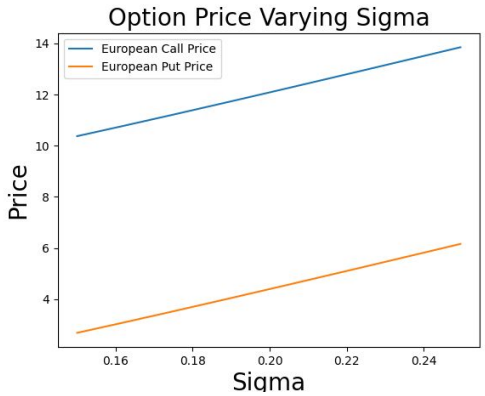
```
naman-ubuntu@naman-ubuntu:~/Desktop/FE Labs/lab02$ python3 180123029_NamanGoyal_q1.py
Vaue of European Call Option for set 1: 12.085380
Vaue of European Put Option for set 1: 4.397015

Vaue of European Call Option for set 2: 12.123047
Vaue of European Put Option for set 2: 4.434682

naman-ubuntu@naman-ubuntu:~/Desktop/FE Labs/lab02$
```

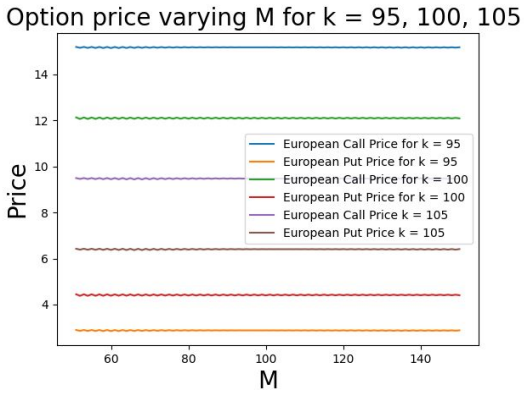
- The graphs obtained are shown below for **Set.1**



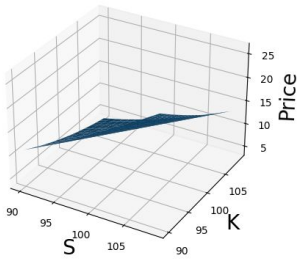




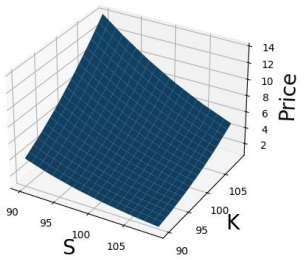




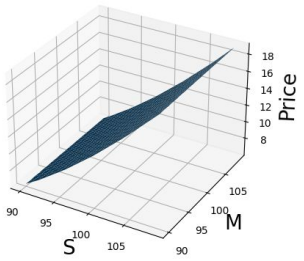
Call Price varying S,k



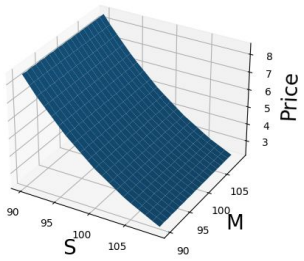
Put Price varying S,k



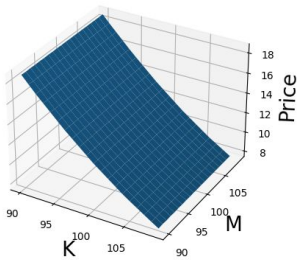
Call Price varying S,M



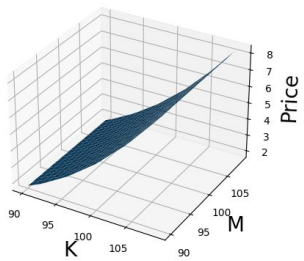
Put Price varying S,M



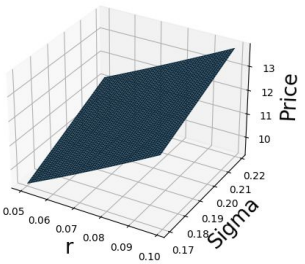
Call Price varying K,M



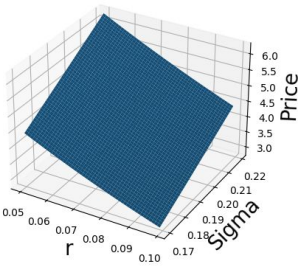
Put Price varying K,M



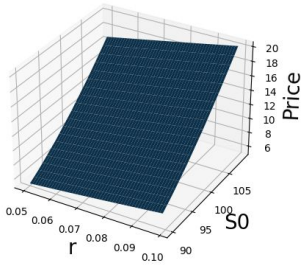
Call Price varying r,Sigma



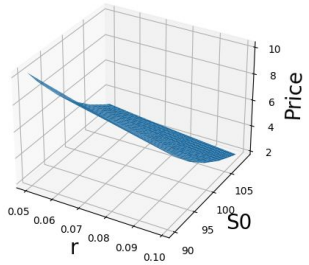
Put Price varying r,Sigma



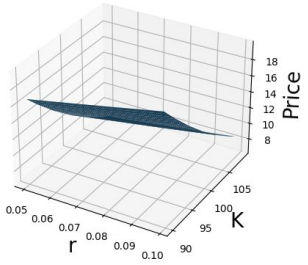
Call Price varying r,S0



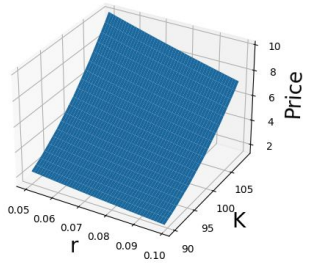
Put Price varying r,S0



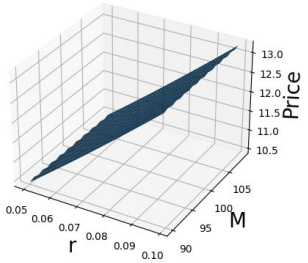
Call Price varying r,K



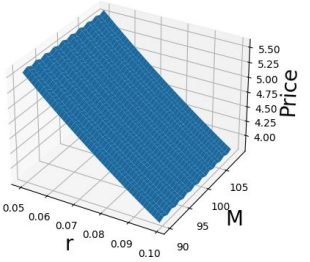
Put Price varying r,K



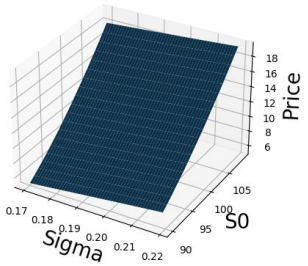
Call Price varying r,M



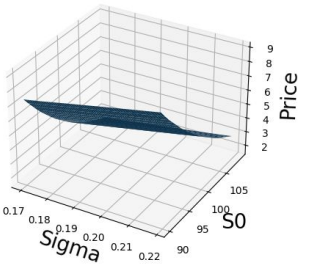
Put Price varying r,M



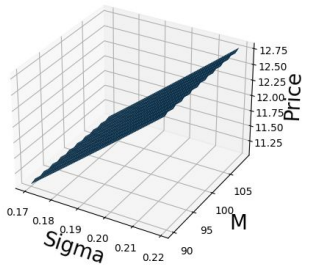
Call Price varying Sigma,S0



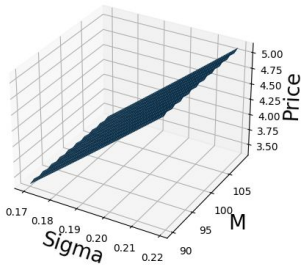
Put Price varying Sigma,S0



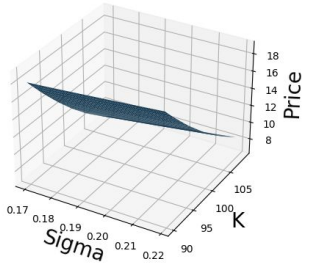
Call Price varying Sigma,M



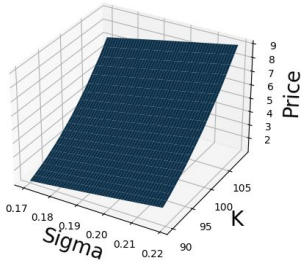
Put Price varying Sigma,M



Call Price varying Sigma,K

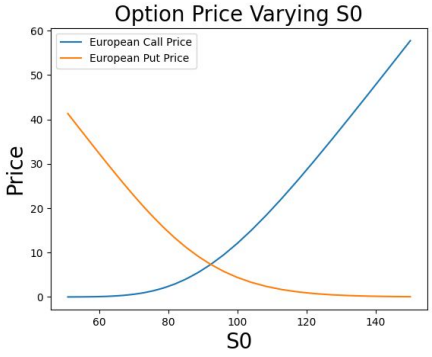


Put Price varying Sigma,K

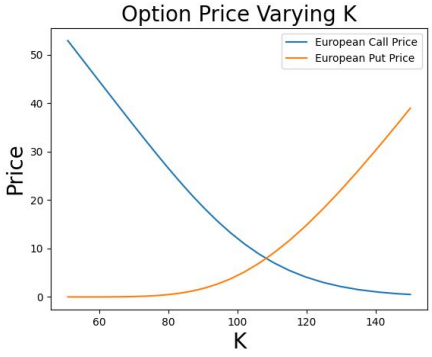


- The graphs obtained are shown below for **Set.2**

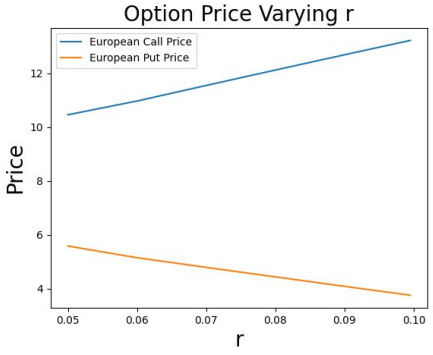
Option Price Varying S0



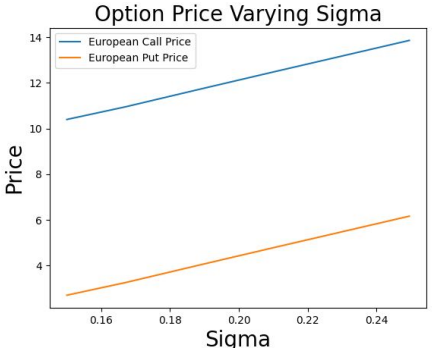
Option Price Varying K



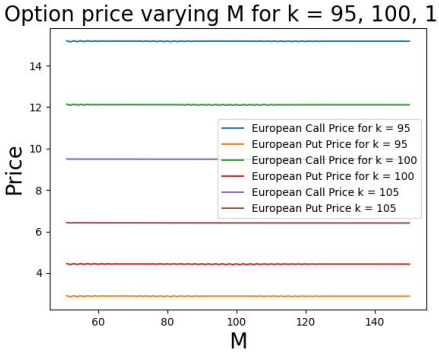
Option Price Varying r



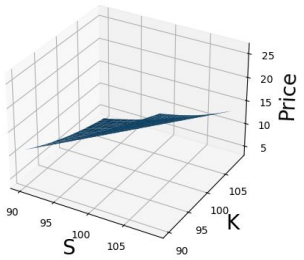
Option Price Varying Sigma



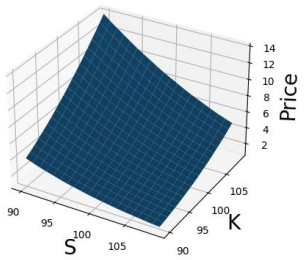
Option price varying M for k = 95, 100, 105



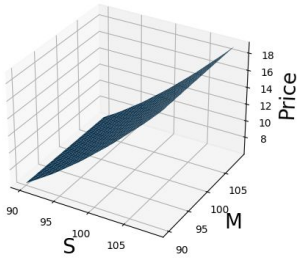
Call Price varying S,K



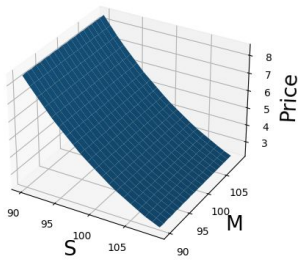
Put Price varying S,K



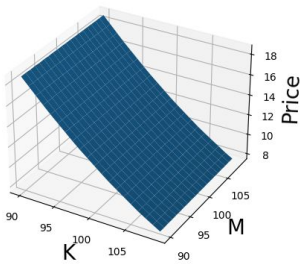
Call Price varying S,M



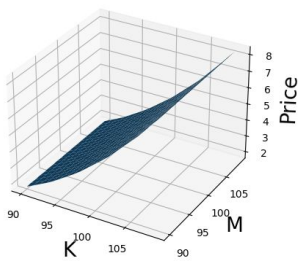
Put Price varying S,M



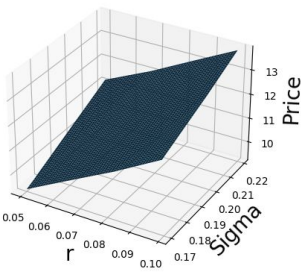
Call Price varying K,M



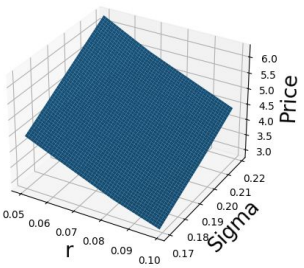
Put Price varying K,M



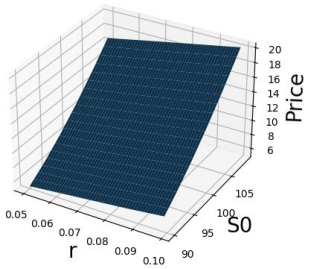
Call Price varying r,Sigma



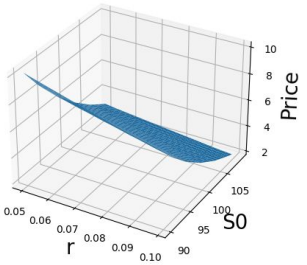
Put Price varying r,Sigma



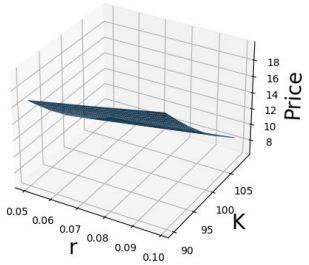
Call Price varying r,S0



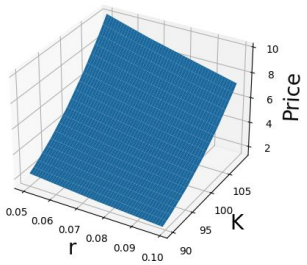
Put Price varying r,S0



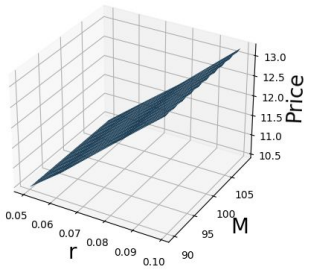
Call Price varying r,K



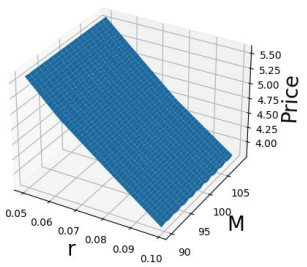
Put Price varying r,K



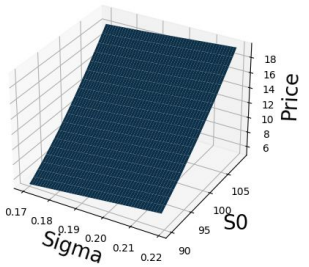
Call Price varying r,M



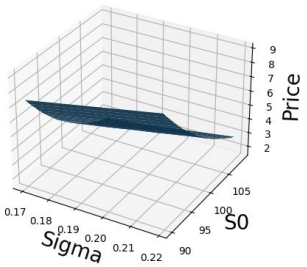
Put Price varying r,M



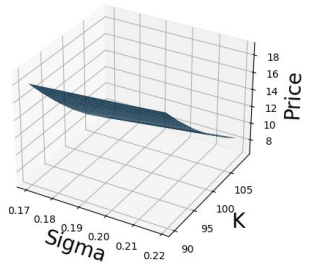
Call Price varying Sigma,S0



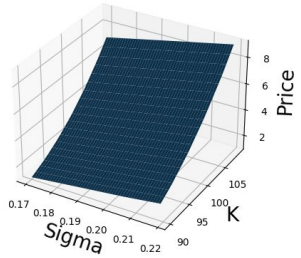
Put Price varying Sigma,S0



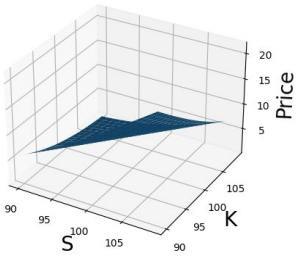
Call Price varying Sigma,K



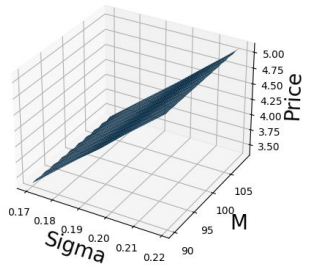
Put Price varying Sigma,K



Call Price varying S,k



Put Price varying Sigma,M



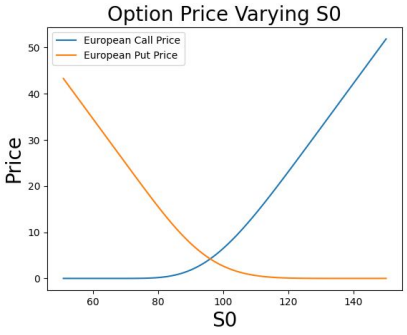
Ques.2

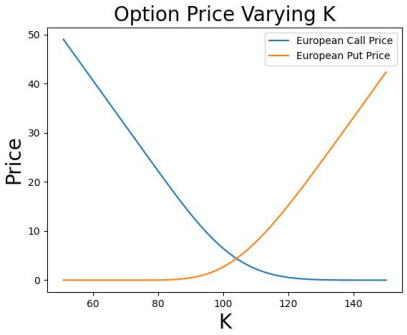
- To execute my .py file
  Run **$python3 180123029_NamanGoyal_q2.py** on the terminal. The snapshot is given below

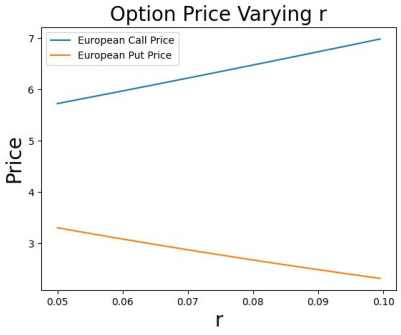
```
naman-ubuntu@naman-ubuntu:~/Desktop/FE Labs/lab02$ python3 180123029_NamanGoyal_q2.py
--------Using Asian Option for the path-dependent derivative variable -------
Vaue of European Call Option for set 1: 6.476003
Vaue of European Put Option for set 1: 2.677946

Vaue of European Call Option for set 2: 6.490029
Vaue of European Put Option for set 2: 2.691972

naman-ubuntu@naman-ubuntu:~/Desktop/FE Labs/lab02$
```

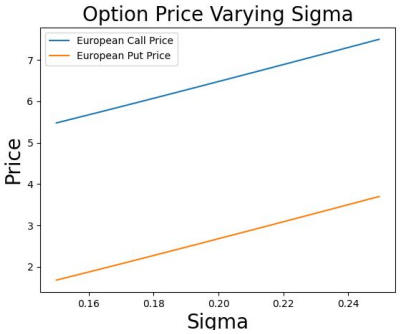
- **Asian Option** is been used as the **path-dependent derivative** variable.

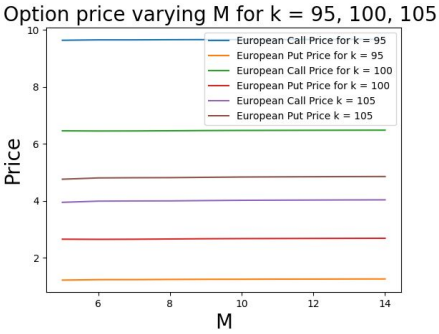
- The graphs obtained are shown below for **Set.1**



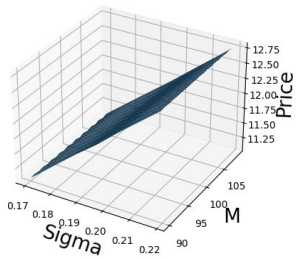




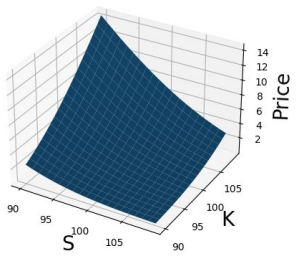




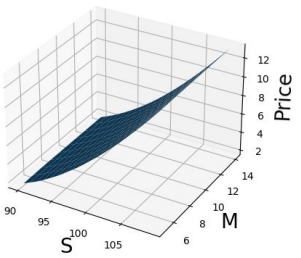
Call Price varying Sigma,M



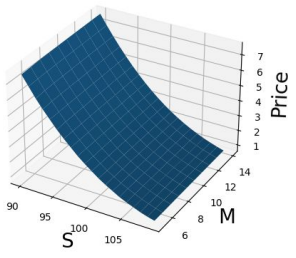
Put Price varying S,k



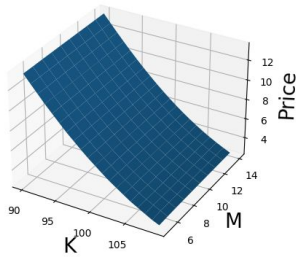
Call Price varying S,M



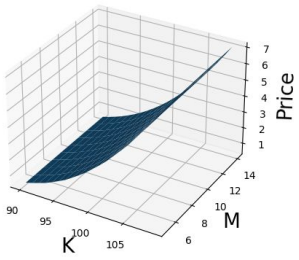
Put Price varying S,M



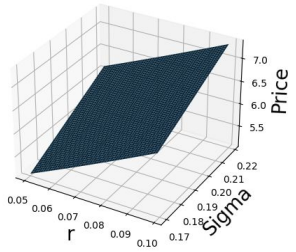
Call Price varying K,M



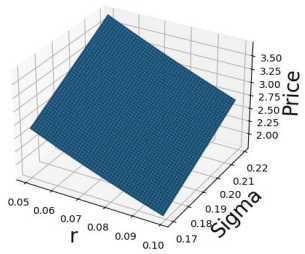
Put Price varying K,M



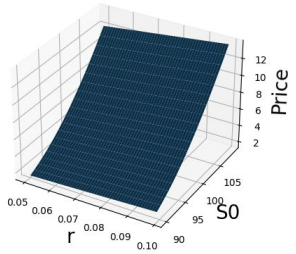
Call Price varying r,Sigma



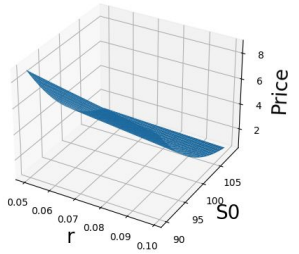
Put Price varying r,Sigma



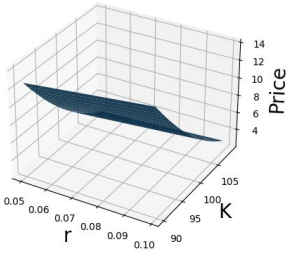
Call Price varying r,S0



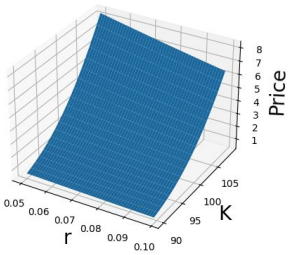
Put Price varying r,S0



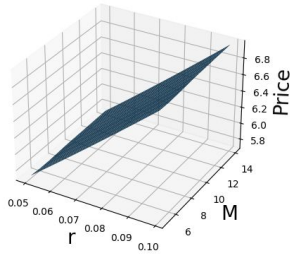
Call Price varying r,K



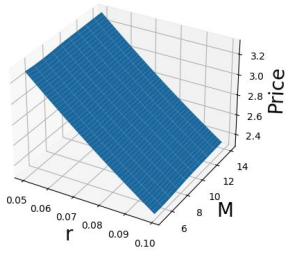
Put Price varying r,K



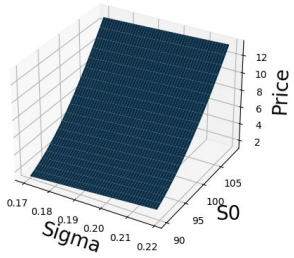
Call Price varying r,M



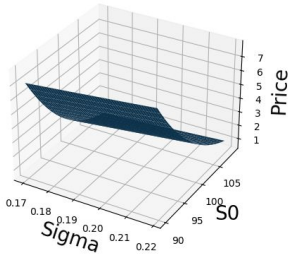
Put Price varying r,M



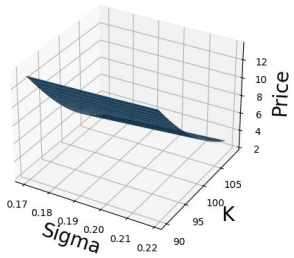
Call Price varying Sigma,S0



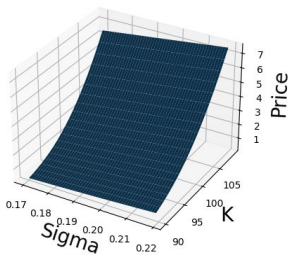
Put Price varying Sigma,S0



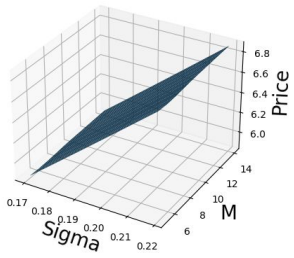
Call Price varying Sigma,K



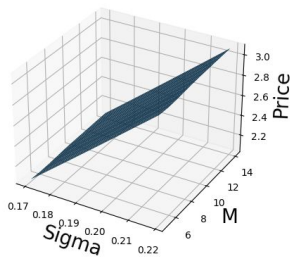
Put Price varying Sigma,K



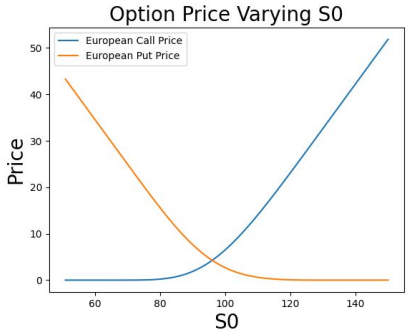
Call Price varying Sigma,M

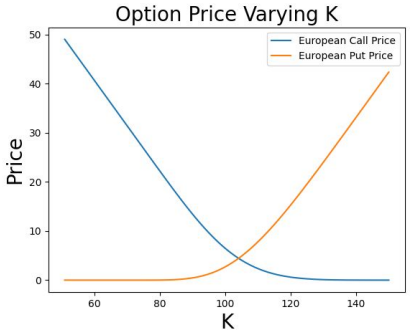


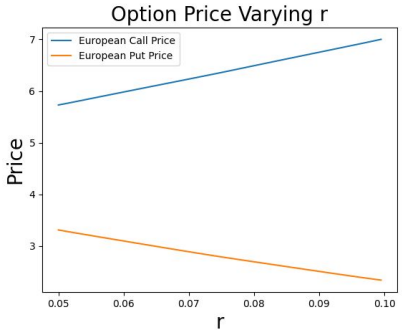
Put Price varying Sigma,M

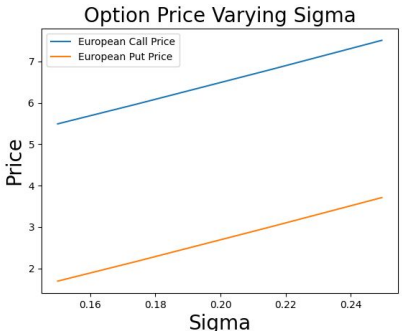


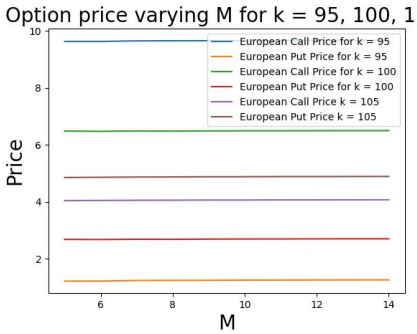
- The graphs obtained are shown below for **Set.2**

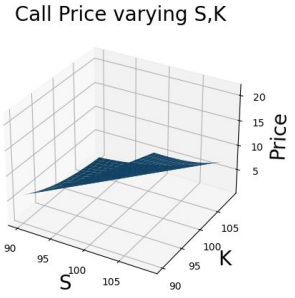


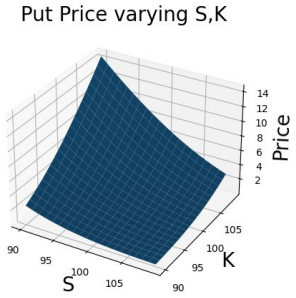


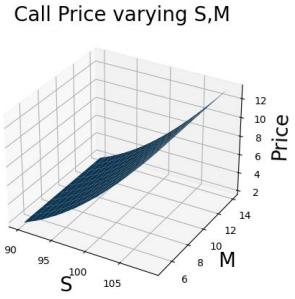


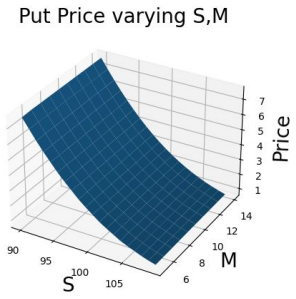




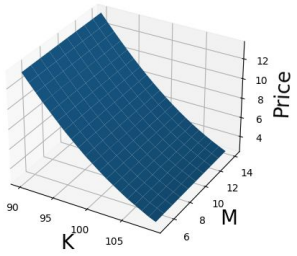




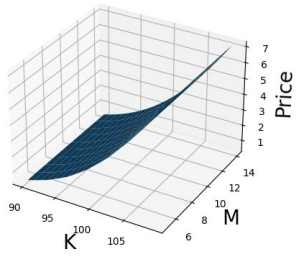




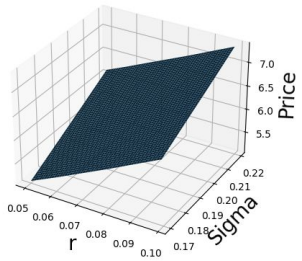
Call Price varying K,M



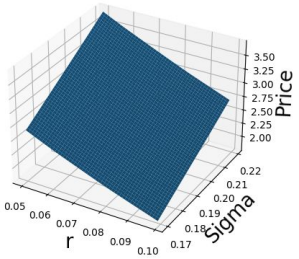
Put Price varying K,M



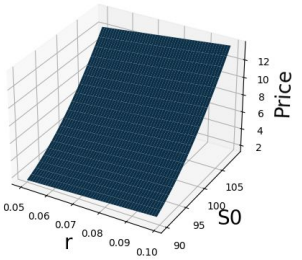
Call Price varying r,Sigma



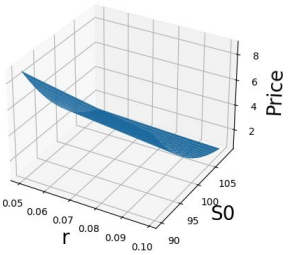
Put Price varying r,Sigma



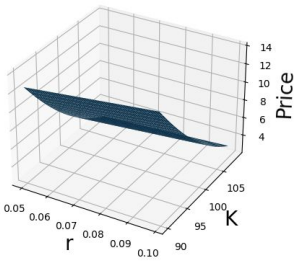
Call Price varying r,S0



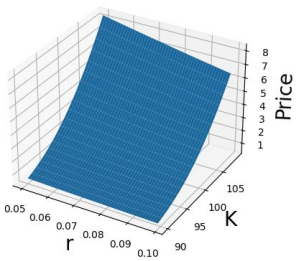
Put Price varying r,S0



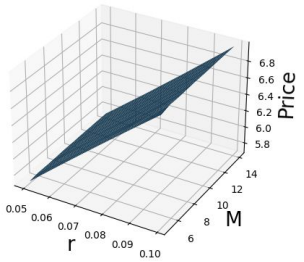
Call Price varying r,K



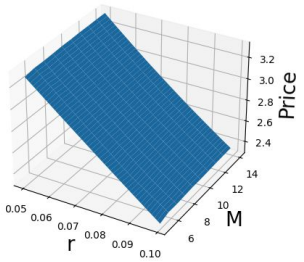
Put Price varying r,K



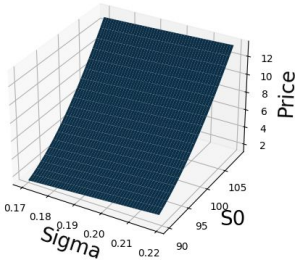
Call Price varying r,M



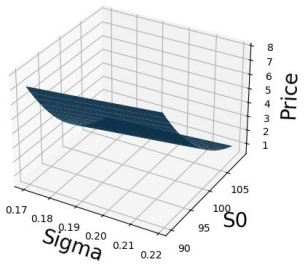
Put Price varying r,M



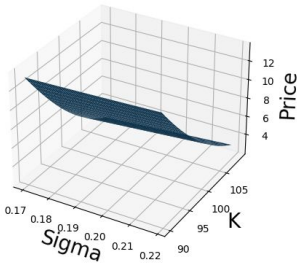
Call Price varying Sigma,S0



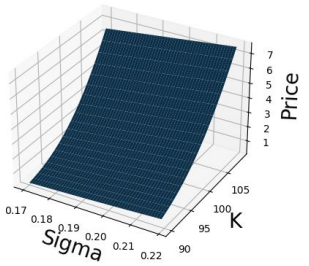
Put Price varying Sigma,S0



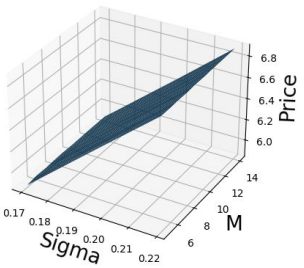
Call Price varying Sigma,K



Put Price varying Sigma,K



Call Price varying Sigma,M



Put Price varying Sigma,M