



BACHELOR DEGREE OF MATHEMATICS

ASSIGNMENT REPORT

Programming Language

4420102177

Oleh:

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MA - 2022X

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1 Problem Statement

Describe the problem you solve today

2 Flowchart

Make a flowchart based on problem statement. Here's an example:

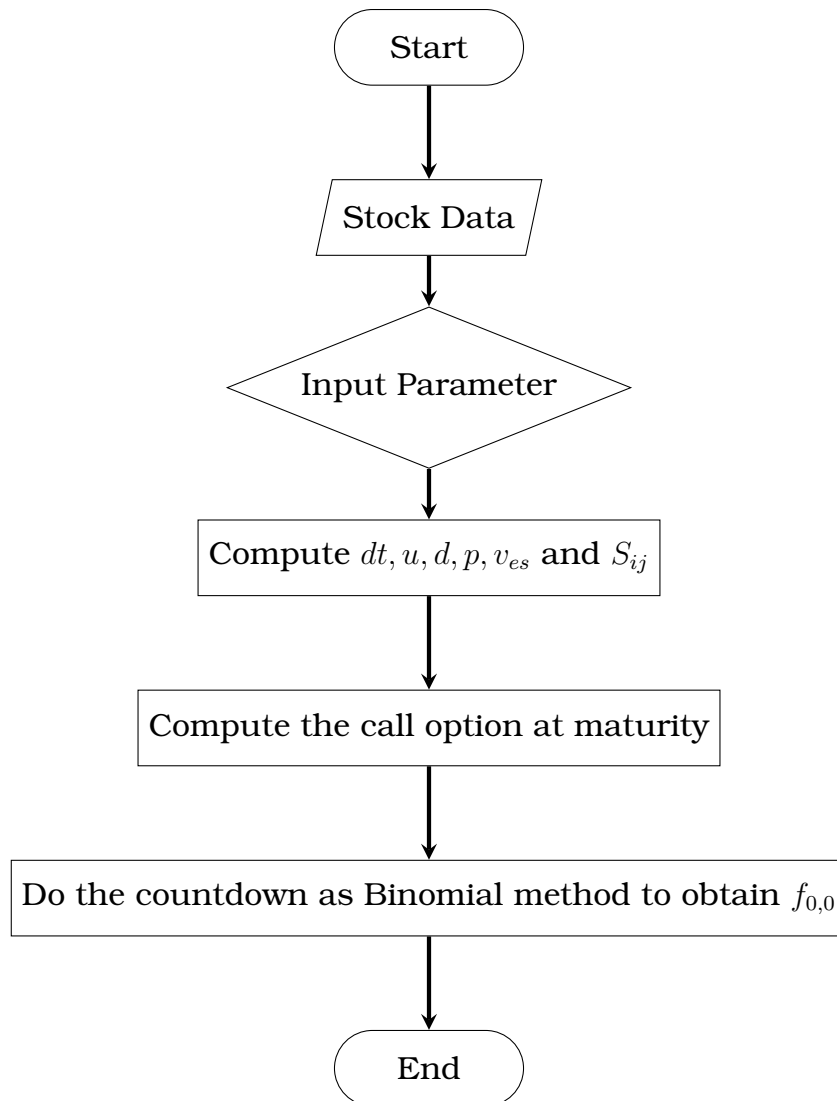


Figure 1: Flow chart

3 Source Code

Type the source code here. This is the example of source code:

```
import numpy as np
from scipy.integrate import odeint
import matplotlib.pyplot as plt
```

#SIS Model

```

t = np.linspace(0,50)
i0 = 0.4
beta = 0.5

def model(i, t, beta, gamma):
    didt = (beta-gamma-beta*i)*i
    return didt

gamma = 0.05
y1 = odeint(model, i0, t, args=(beta, gamma))
gamma = 0.6
y2 = odeint(model, i0, t, args=(beta, gamma))

fig=plt.figure()
plt.plot(t,y1, 'r', label='$beta_{>gamma}$')
plt.plot(t,y2, 'g', label='$beta_{<gamma}$')
plt.xlim([0,50])
plt.xlabel('Time')
plt.ylabel('Infected_people')
plt.grid(b=True, which='both', c='k', lw=1, ls=':')
legend = plt.legend()
legend.get_frame().set_alpha(0.5)

```

4 Screenshots of Running Programme

5 Description

Give some descriptions on the problem you solve.

References

- [1] Mariano Azuela, *The Underdogs: A Novel of the Mexican Revolution*, trans. Beth Jorgensen (New York: The Modern Library, 2002).

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Figure 2: Output of the programme with xxx