Ain Shams University

Faculty of Engineering

Mechatronics Department

3rd Year Mechatronics

Projectile Simulator program

By :

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Contribution:

Amira Fares:

Wrote the main part of the code (Body and classes and most of functions).

Assembled the equations.

Finalizing and editing the code.

Finalizing the report.

Mostafa Essam:

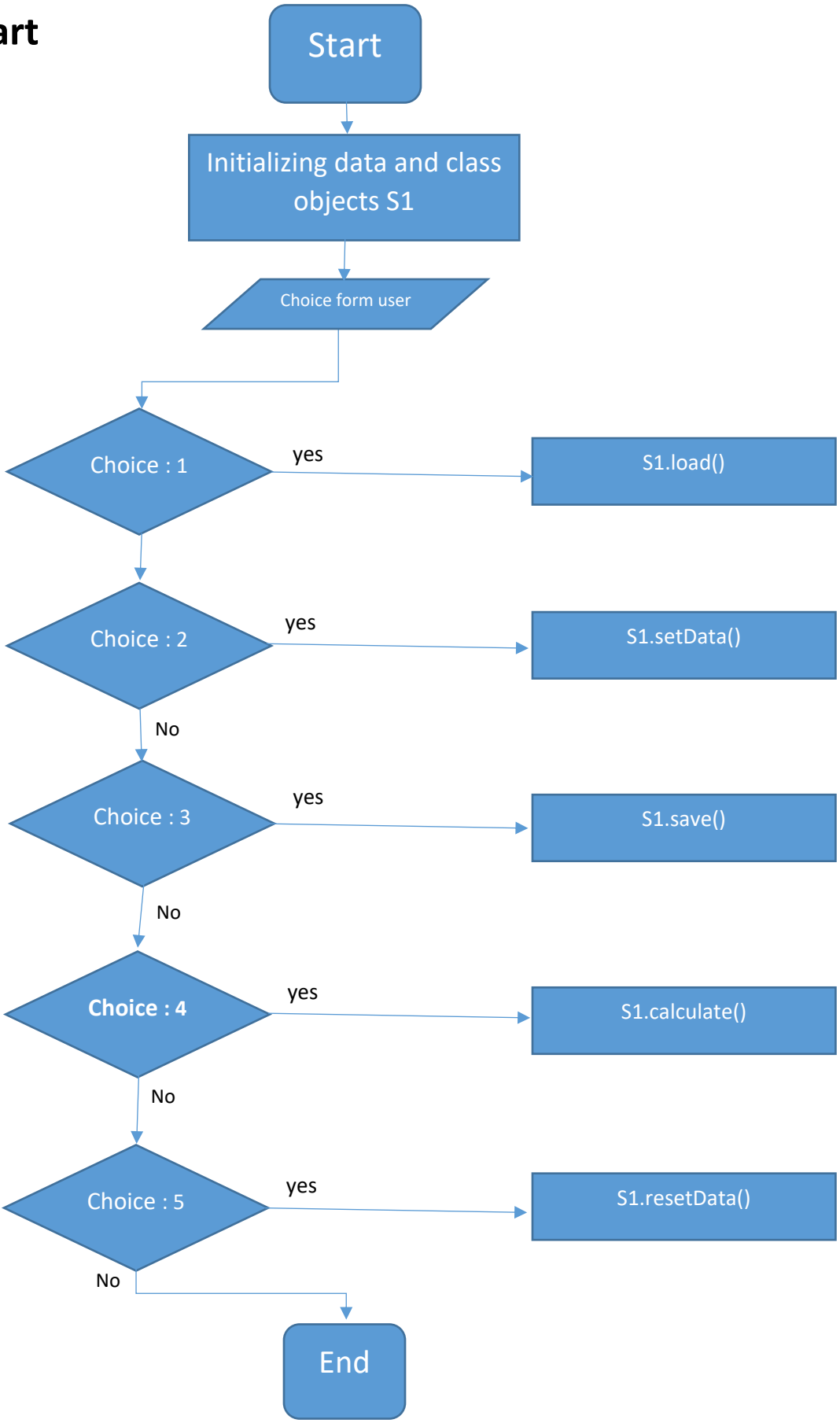
Wrote the calculation part, some functions, and conditions to avoid errors.

Wrote the simulation part.

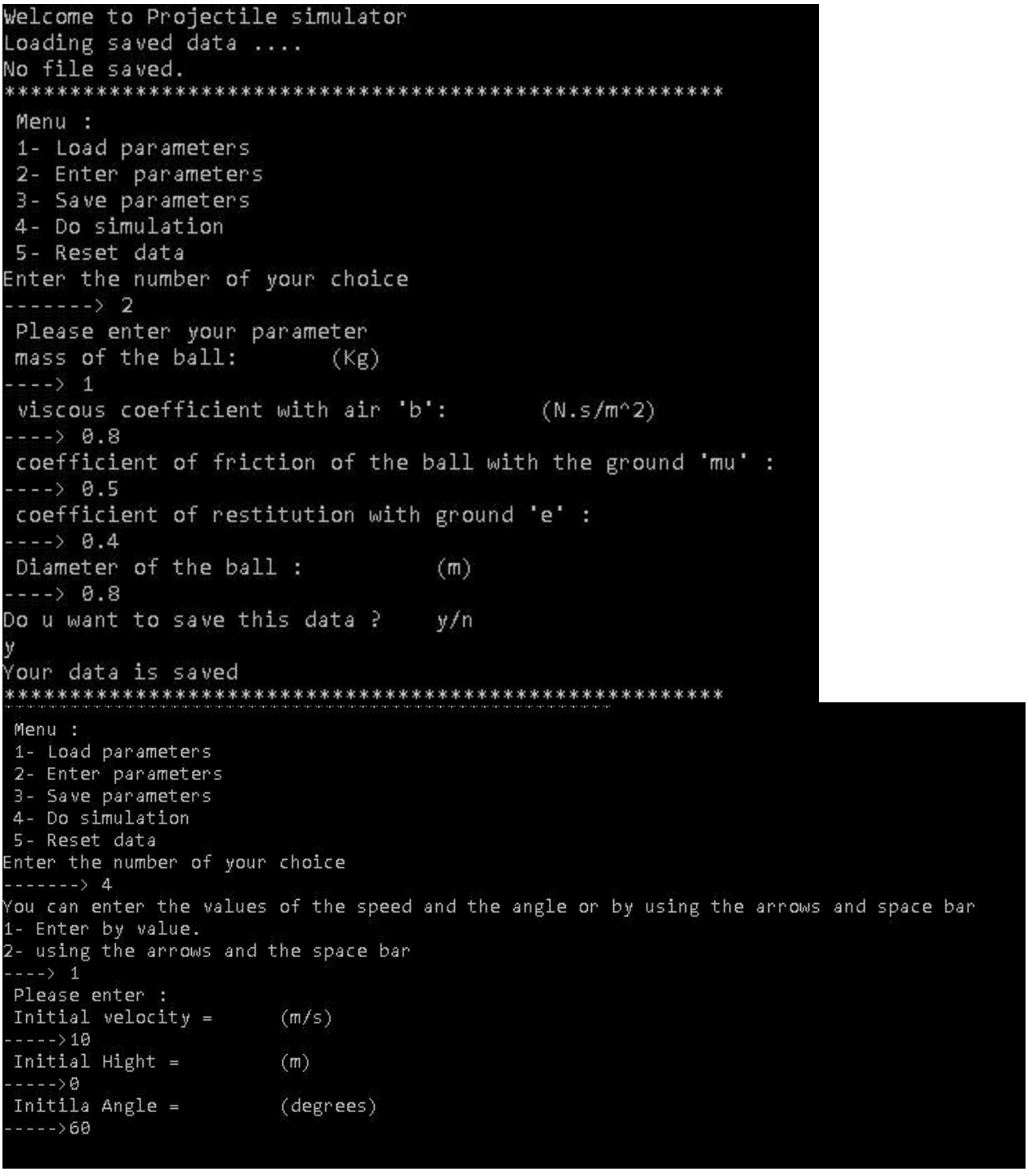
Flow chart and most of the report.

Finalizing and editing the code.

Flow chart

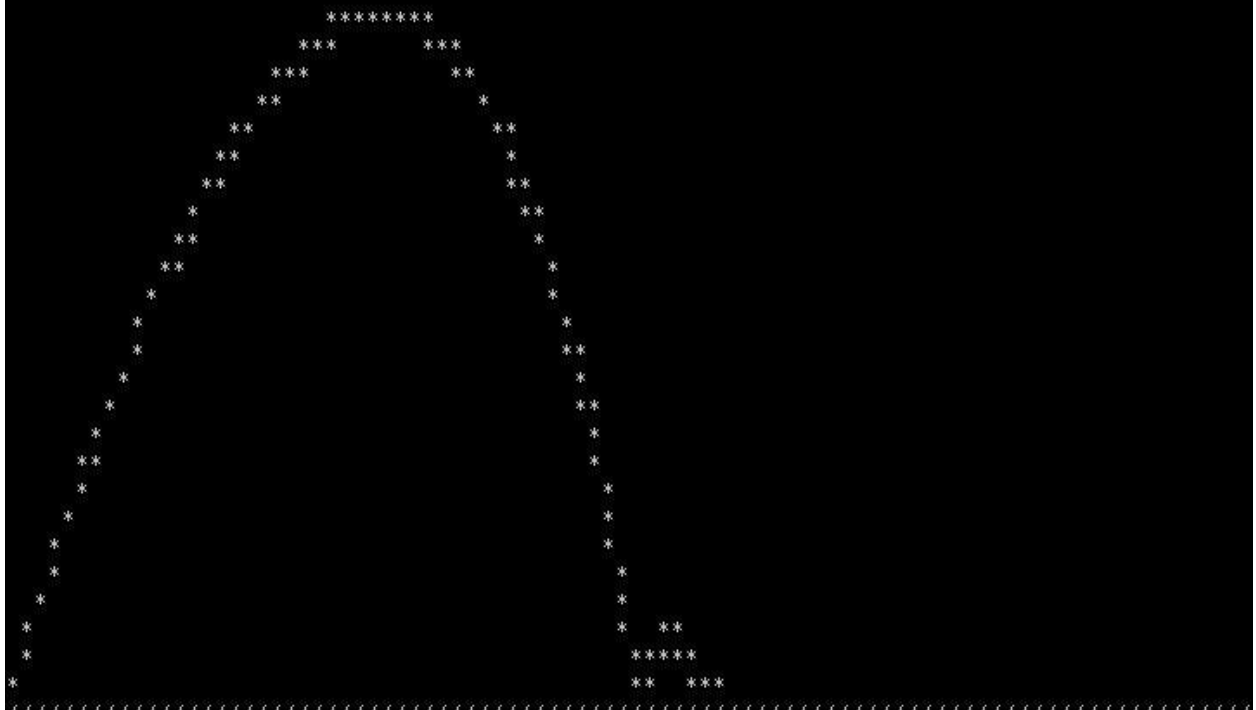

Start
Initializing data and class objects S1
Choice form user
Choice : 1
yes
S1.load()
Choice : 2
yes
S1.setData()
No
Choice : 3
yes
S1.save()
No
Choice : 4
yes
S1.calculate()
No
Choice : 5
yes
S1.resetData()
No
End

Screen Shots :



C:\Users\musta\Desktop\Bouncing Ball.exe

```
**********************************************************
 Menu :
 1- Load parameters
 2- Enter parameters
 3- Save parameters
 4- Do simulation
 5- Reset data
Enter the number of your choice
-------> 4
You can enter the values of the speed and the angle or by using the arrows and space bar
1- Enter by value.
2- using the arrows and the space bar
----> 2
Use Up and Down arrows to choose the angle
Press enter to continue
Angle : +45
Press the space bar for the velocity
Press the space bar until you see the value
velocity : +10
 Initial Hight =         (m)
----->0
```



```
////////////////////////////////////////////////////////////////////////////////////////////////////
Your simulation data file is in the application folder
Open it in matlab or excel programs to see the simulation clearly
Thanks for using our program

Enter 0 to Exit
```

Testing Parameters:

Mass (kg)	Diameter (m)	Initial velocity (m/s)	Initial angle (degrees)	b (N.s/m)	e	mu	h (m)
1	0.8	10	60	0.8	0.4	0.5	0
2.5	1.1	20	80	0.8	0.8	0.6	1