IV. Regression analysis

Pseudo code

1. Begin
2. Create a function, linear\_func, that returns slope \* x + intercept
3. Create a function, linear\_regression, to plot the graphs
   1. Calculate the slope and y-intercept of the linear regression
   2. Use linear\_func to calculate the coresponding y values of the linear regression
   3. Plot the graph of y against x
   4. Plot the graph of the linear regression
   5. Display the graph
4. Main function
   1. Assign the calorie intakes of all the members into calorie
   2. Assign the weights of all the members into weight
   3. Assign the physical activities of all the members into phy
   4. Plot the graph of weights againt calorie intakes and the linear regression
      1. Set the title of a graph as ‘Correlation between the calorie intakes and the weights of students’
      2. Label the x-axis of the graph as ‘Calorie intake (kcal)
      3. Label the y-axis of the graph as ‘Weight (kg)’
      4. Pass calories and weight to linear\_regression to
   5. Plot the graph of physical activities againt calorie intakes and the linear regression
      1. Set the title of a graph as ‘Correlation between the calorie intakes and the weights of students’
      2. Label the x-axis of the graph as ‘Calorie intake (kcal)
      3. Label the y-axis of the graph as ‘Weight (kg)’
      4. Pass phy and weight to linear\_regression
   6. Plot the graph of physical activities againt calorie intakes and the linear regression
      1. Set the title of a graph as ‘Correlation between the calorie intakes and the weights of students’
      2. Label the x-axis of the graph as ‘Calorie intake (kcal)
      3. Label the y-axis of the graph as ‘Weight (kg)’
      4. Pass phy and calories to linear\_regression
5. End

Flowchart

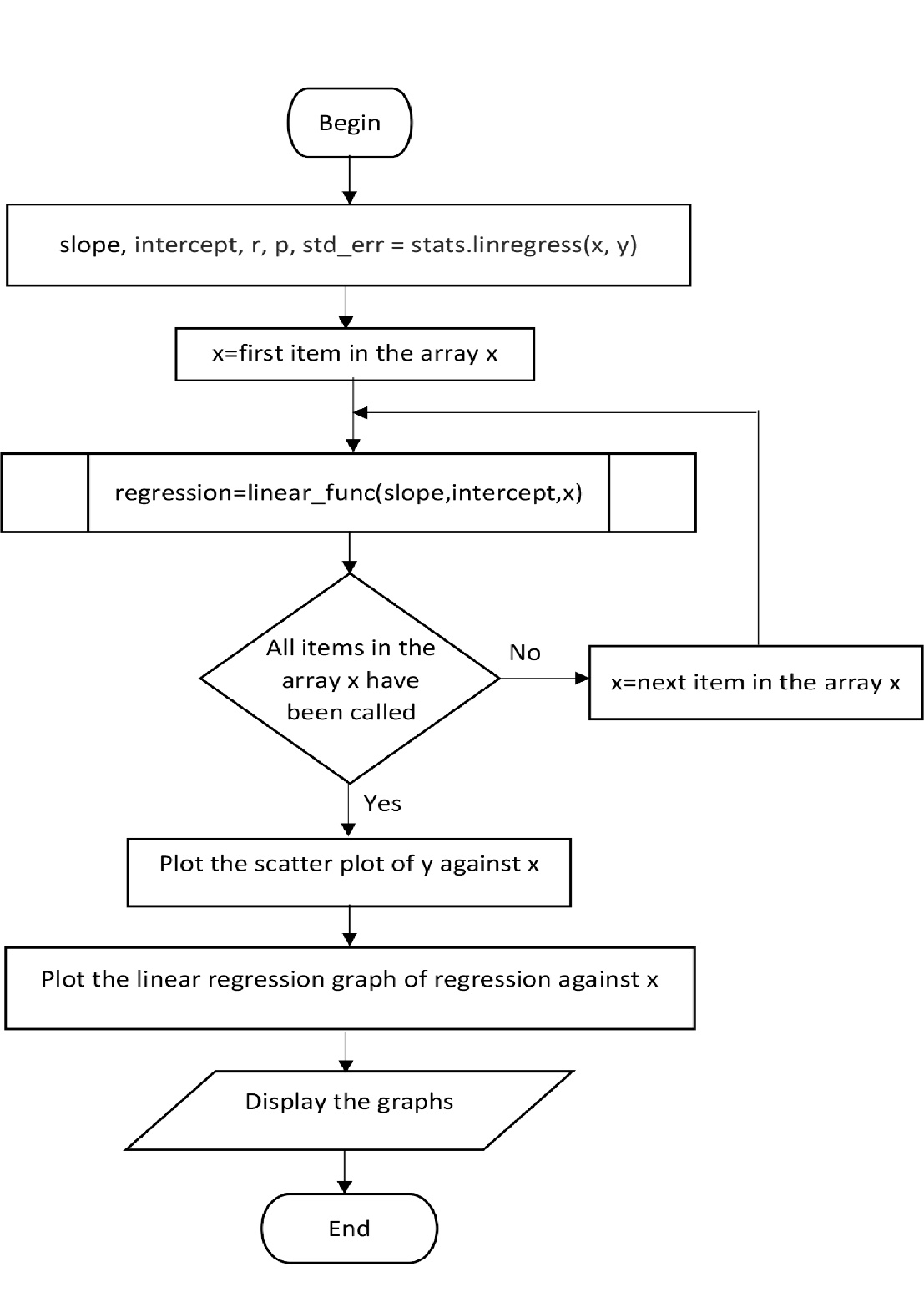
linear\_func(slope, x, intercept):

Begin

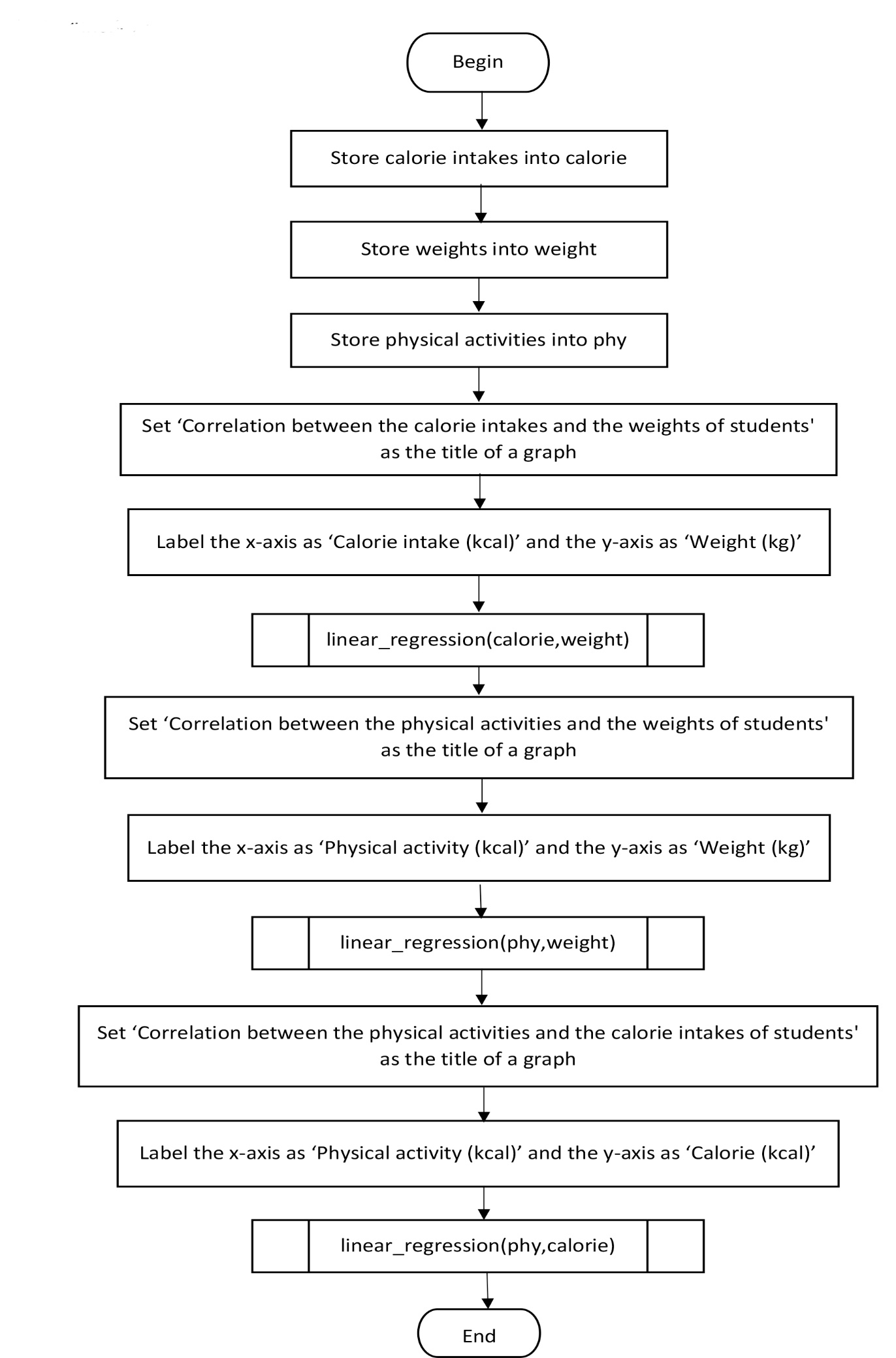
return slope \* x + intercept

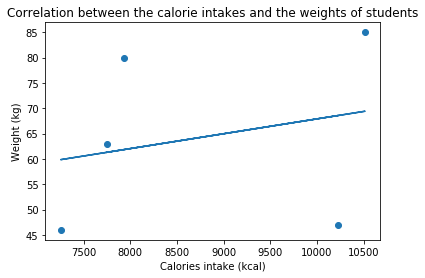
End

linear\_regression(x, y):

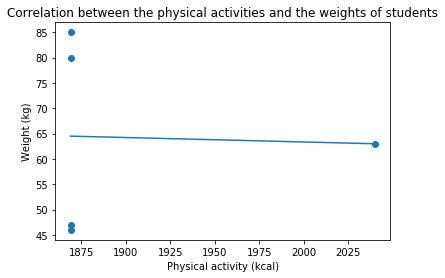


Main function:

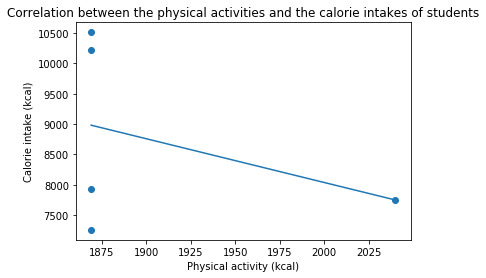




The graph shows positive correlation between the calorie intakes and the weight of students. As the calorie intakes of the students increase, the weights of the students also increase.



The slope of the linear regression graph is insignificant. There is no correlation between the physical activities and the weights of the students.



As the physical activity increases, the y value of the linear regression graph decreases. Hence, the graph shows negative correlation between the physical activities and the calorie intakes of the students.