Data Structures and Program Design Using C
SCS 1301

Exercise

1. Write a C program that calculates the Body Mass Index (BMI) for three individuals using the formula:

   BMI = weight (kg) / [height (m)]^2

   Given Values:

Person	Weight (kg)	Height (m)
A	68.0	1.65
B	75.0	1.70
C	50.0	1.55

   Task:

   1. Calculate and print the BMI for each person.

   2. Compute the average BMI of all three people.

   3. Compute the maximum and minimum BMI using arithmetic and logical operators only.

   4. For each person, print a comment beside their BMI showing how their BMI compares to:
       a) The average BMI
       b) The normal BMI range (18.5–24.9)

2. Write a C program to calculate the area, perimeter, and additional derived measurements for the following shapes using fixed dimensions. Display all results clearly and use constants where applicable.

Fixed Dimensions:

   Rectangle: Length = 10, Breadth = 5

   Triangle: Base = 8, Height = 6, Side1 = 8, Side2 = 6, Side3 = 7

   Circle: Radius = 7

Required Calculations:

1. Rectangle
   a) Area
   b) Perimeter
   c) Diagonal (use Pythagoras: sqrt(length² + breadth²))

2. Triangle
   a) Area
   b) Perimeter

3. Circle
   a) Area
   b) Circumference
   c) Diameter
   d) Area of a semicircle

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