Set Task Brief

You are asked to use your software design, development, testing and evaluation understanding and skills to produce a program that meets the client's requirements.

A local gym has commissioned you as a software developer to write a program that will assess a gym member's requirement to maintain their current weight accurately.

You need to create a program that will give a gym member information about:

- their current basal metabolic rate (BMR)
- their current body mass index (BMI)
- their target BMI
- the number of kilocalories to maintain their current weight.

You will design, implement and test your program. You will also need to justify and evaluate your decisions.

When designing and developing the solution ensure:

- it is efficient and robust
- it provides the accurate daily intake requirement for a gym member to maintain their body mass index (BMI)
- the BMR calculation is given to 2 decimal places
- the BMI calculation is given to 1 decimal place
- the kilocalorie requirement output is shown rounded to a whole number
- there is a text output to show the member's:
  - current BMR
  - current BMI
  - target BMI.

Information

You are provided with information to use when designing and developing your program:

- the revised Harris-Benedict equation used to calculate Basal Metabolic Rate
- the formula to use to give the recommended daily kilocalorie intake to maintain current weight for men and women
- the formula to calculate BMI
- the standard BMI categories
- current gym membership age, weight and height profile.

Calculating the Basal Metabolic Rate (BMR) using the revised Harris-Benedict equation

Men	BMR = 88.362 + (13.397 x weight in kg) + (4.799 x height in cm) – (5.677 x age in years)
Women	BMR = 447.593 + (9.247 x weight in kg) + (3.098 x height in cm) – (4.330 x age in years)

Calculating the recommended daily kilocalorie intake to maintain current weight

Individual's level of exercise	Calculation of daily intake required (kilocalories)
Little to no exercise	BMR x 1.2
Light exercise (1–3 days per week)	BMR x 1.375
Moderate exercise (3–5 days per week)	BMR x 1.55
Heavy exercise (6–7 days per week)	BMR x 1.725
Very heavy exercise (twice per day, extra heavy workouts)	BMR x 1.9

Calculating BMI

BMI = Weight (kg) / (Height (m) x Height (m))

Standard BMI categories

Underweight = <18.5
Normal weight = 18.5–24.9
Overweight = 25–29.9
Obesity = BMI of 30 or greater.

Ideal gym member BMI = 22.

Current gym membership age, weight and height profile

Membership age range: 14–100 years of age.

Weight range: 30–250 kg.

Height range: 120 – 210 cms.