FACULTY OF COMPUTING
SEMSTER 1 2024/2025

PROGRAMMING TECHNIQUE I
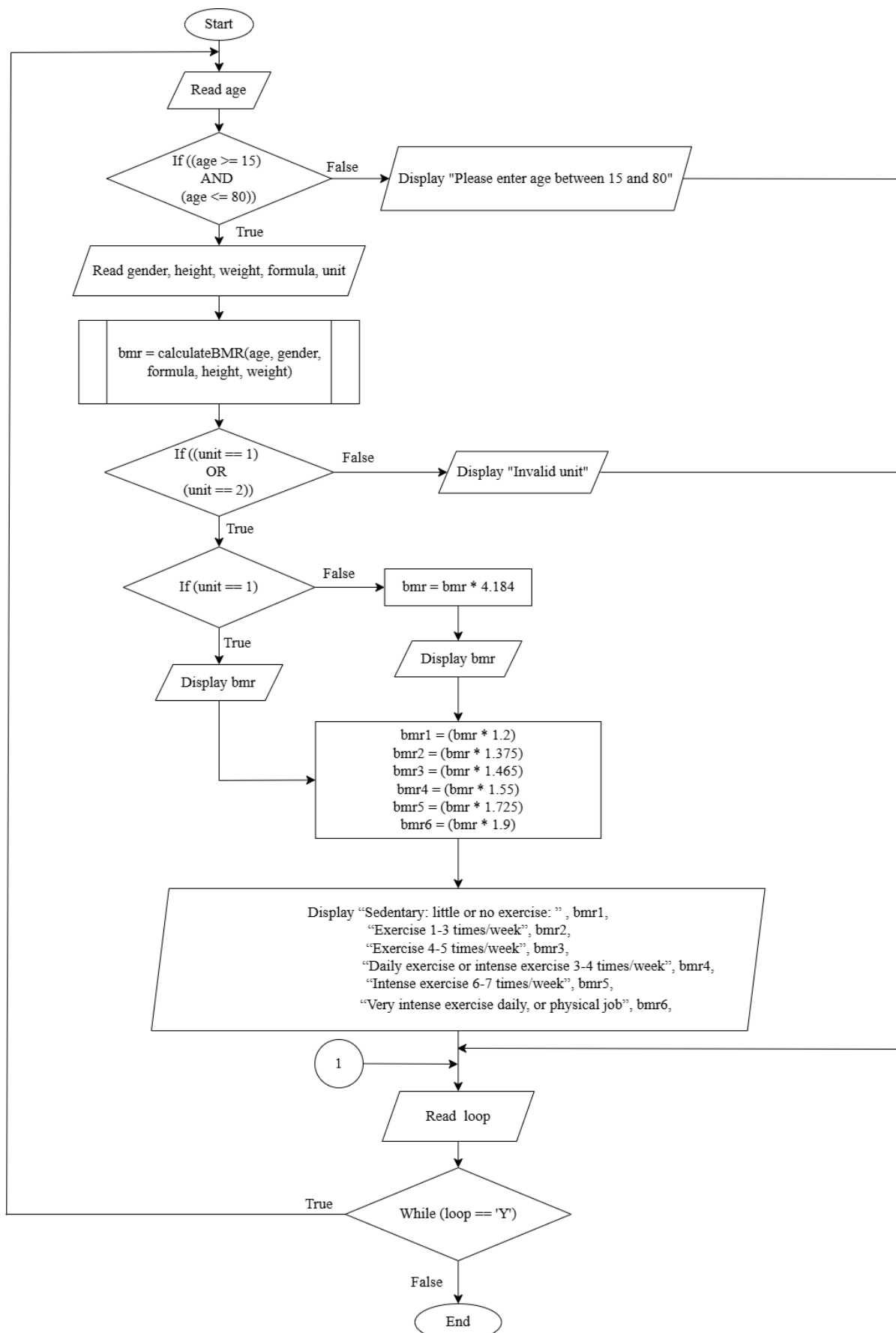
(SECJ1013)

SECTION 3

ASSIGNMENT 1

LECTURER : MR ALIF RIDZUAN KHAIRUDDIN

DATE: 27/10/2024

STUDENT NAME	MATRIC NO.
EVELYN ANG	A24CS0068
TAN XIN TIAN	A24CS0198

Main Flowchart

```
                        ┌─────────┐
                        │  Start  │
                        └─────────┘
                             │
                      ╱─────────────╲
                     │   Read age    │
                      ╲─────────────╱
                             │
                    ╱───────────────╲
                   ╱  If ((age >= 15) ╲      False
                  ╱       AND          ╲──────────────▶  ╱─────────────────────────────────────╲
                  ╲    (age <= 80))    ╱                 │ Display "Please enter age between 15 │
                   ╲                  ╱                  │         and 80"                      │
                    ╲───────────────╱                    ╲─────────────────────────────────────╱
                             │ True
                  ╱────────────────────────────────╲
                 │ Read gender, height, weight,      │
                 │        formula, unit              │
                  ╲────────────────────────────────╱
                             │
                 ┌──┬──────────────────────────┬──┐
                 │  │ bmr = calculateBMR(age,   │  │
                 │  │   gender, formula, height,│  │
                 │  │        weight)            │  │
                 └──┴──────────────────────────┴──┘
                             │
                    ╱───────────────╲
                   ╱  If ((unit == 1) ╲      False
                  ╱        OR          ╲──────────────▶  ╱───────────────────╲
                  ╲     (unit == 2))   ╱                 │ Display "Invalid unit" │
                   ╲                  ╱                   ╲───────────────────╱
                    ╲───────────────╱
                             │ True
                    ╱───────────────╲       False
                   │  If (unit == 1)  │──────────────▶  ┌──────────────────┐
                    ╲───────────────╱                   │ bmr = bmr * 4.184 │
                             │ True                      └──────────────────┘
                             │                                    │
                  ╱─────────────────╲                    ╱─────────────────╲
                  │   Display bmr     │                  │   Display bmr     │
                   ╲─────────────────╱                    ╲─────────────────╱
                             │                                    │
                             │         ┌──────────────────────────┐
                             └────────▶│   bmr1 = (bmr * 1.2)      │
                                       │   bmr2 = (bmr * 1.375)    │
                                       │   bmr3 = (bmr * 1.465)    │
                                       │   bmr4 = (bmr * 1.55)     │
                                       │   bmr5 = (bmr * 1.725)    │
                                       │   bmr6 = (bmr * 1.9)      │
                                       └──────────────────────────┘
                                                    │
              ╱──────────────────────────────────────────────────────────╲
             │ Display "Sedentary: little or no exercise: " , bmr1,         │
             │      "Exercise 1-3 times/week", bmr2,                        │
             │      "Exercise 4-5 times/week", bmr3,                        │
             │      "Daily exercise or intense exercise 3-4 times/week", bmr4, │
             │      "Intense exercise 6-7 times/week", bmr5,                │
             │      "Very intense exercise daily, or physical job", bmr6,   │
              ╲──────────────────────────────────────────────────────────╱
                                                    │
                        ( 1 )──────────────────────▶│
                                                    │
                                          ╱─────────────────╲
                                          │    Read  loop     │
                                           ╲─────────────────╱
                                                    │
           True                           ╱───────────────────╲
     ◀──────────────────────────────────│  While (loop == 'Y')  │
                                          ╲───────────────────╱
                                                    │ False
                                              ┌─────────┐
                                              │   End   │
                                              └─────────┘
```

Main Flowchart

User-defined Function Flowchart

BMR (a,g,f,h,w)

g=="male" OR g=="female"

False → Print "invalid gender" → False → 1

True

g=="male"

False

True

Left branch (g=="male"):

f==1 — True → bmr = (10*w) + (6.25*h) - (5*a) + 5

False

f==2 — True → bmr = (13.397*w) + (4.799*h) - (5.677*a) + 88.362

False

f==3 — True → Read fat → bmr = 370 + 21.6*(1 - fat/100)*w

False

Print "invalid formula"

Right branch:

f==1 — True → bmr = (10*w) + (6.25*h) - (5*a) - 161

False

f==2 — True → bmr = (9.247*w) + (3.098*h) - (4.330*a) + 447.493

False

f==3 — True → Read fat → bmr = 370 + 21.6*(1 - fat/100)*w

False

Print "invalid formula"

1

return bmr