

WONG WEI KENG

## 2.4 EXERCISE

For each following problems, identify the problem inputs, process, and problem outputs. Then write pseudocode and create flowchart for each solution.

1. let a runner insert how steps he has run in one minute and running duration in minutes and second. Find how many miles he run. Assume each of his length is 2.5 feet. (1 miles = 5280 feet).

### Pseudocode

1.0 start

2.0 user input data

2.1 how many steps run in 1 minute

2.2 the running duration in minutes and second

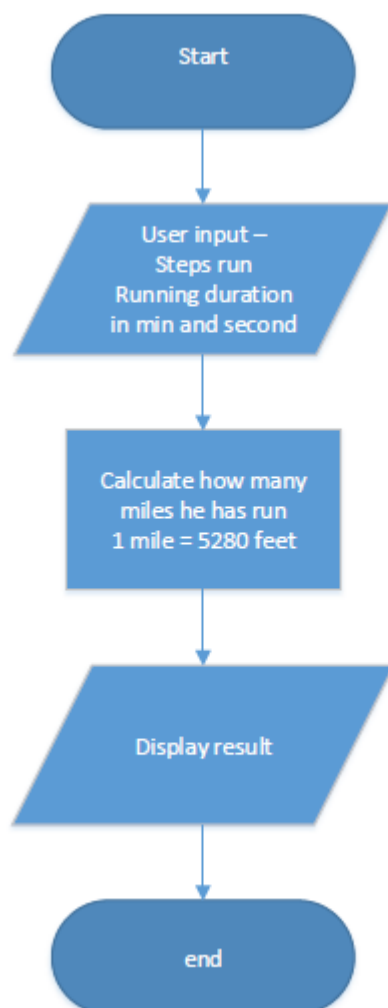
3.0 calculate the miles run

3.1  $1 \text{ mile} = \text{step} * 2.5 / 5280 * (m + s/60)$

4.0 display output in miles

5.0 end

Flow chart



2. This is a problem to calculate and display the body mass index (BMI). The BMI is to determine whether a person is overweight, underweight or has an optimal weigh for his/her height. A person's BMI is calculate using the formula  $BMI = \text{weight} / \text{height} * \text{height}$ . A sedentary person's weigh is considered to be optimal if his/her BMI I between 18.5 and 25. If the BMI is less than 18.5, the person is considered to be underweight. If the BMI greater than 25, the person is considered to be overweight. To determine the BMI, let the organiser enter the total number of participate in this program. Then let each participate enter his/her weight (in KG) and height (in meter); and as a result, the participate gets a message indicating whether he/she has optimal weight, underweight or is overweight. Repeat for all participate.

### Pseudocode

#### 1.0 start

2.0 loop n - total number of participant

3.0 user input data

3.1 total number of participant (n)

3.2 enter weight

3.3 enter height

4.0 calculate BMI

4.1  $BMI = W / (H * H)$

4.2 if  $BMI \geq 25 \& \& BMI \leq 18.5$ , display optimal

4.3 if  $BMI < 18.5$ , display undrweight

4.4 if  $BMI > 25$ , display underweight

5.0 display the output

6.0 end loop

7.0 end

### Flowchart

