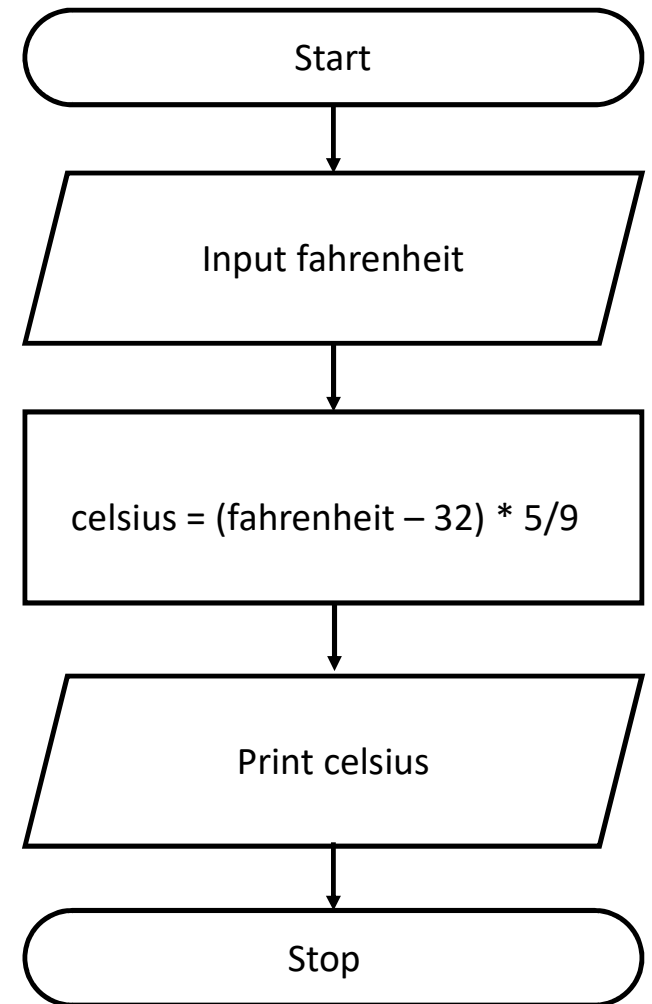


Introduction to Flowcharting

Flowcharts

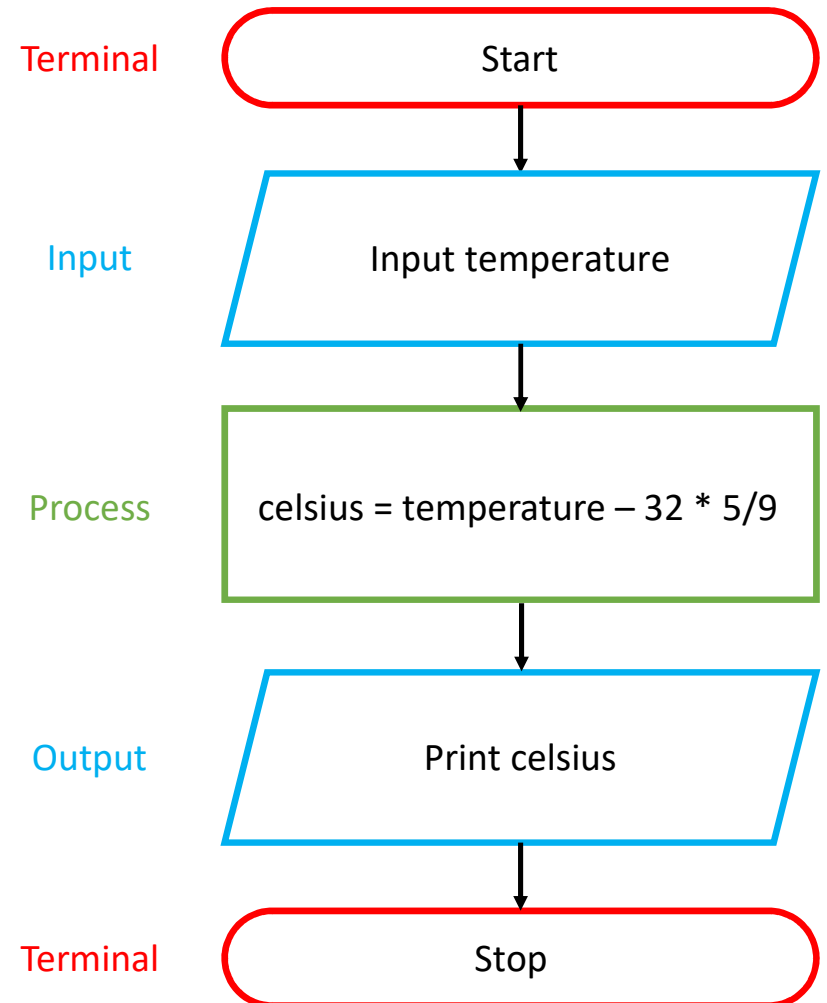
- A flowchart is a diagram that represents an algorithm or the steps of an entire program
- The example here represents a Fahrenheit to Celsius program



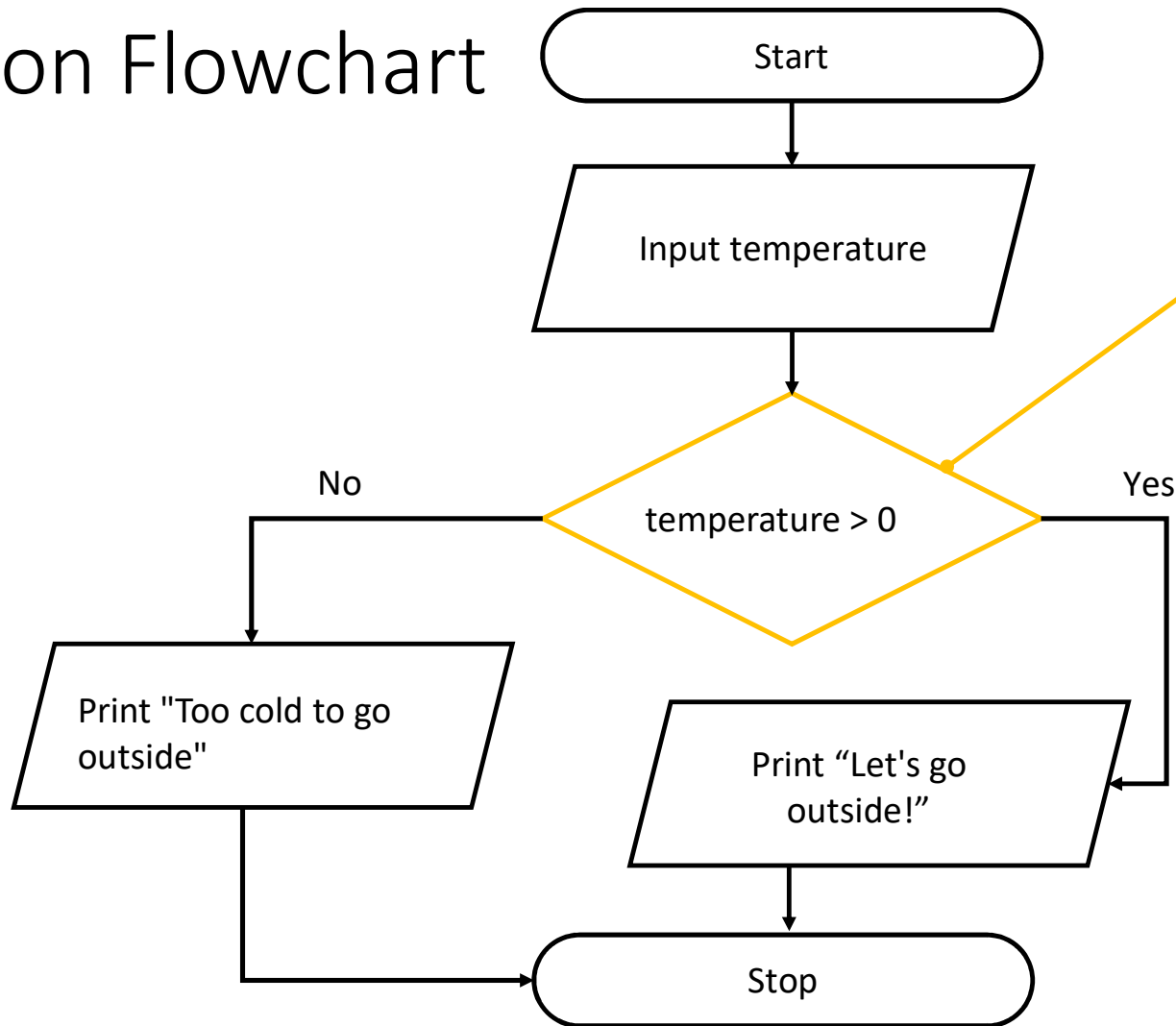
Parts of a Flowchart

- Terminal: start or end of a flowchart
- Input/Output: input or output operations
- Process: indicates computations or data manipulations (e.g. assigning a variable)

Note that each part has a defined shape



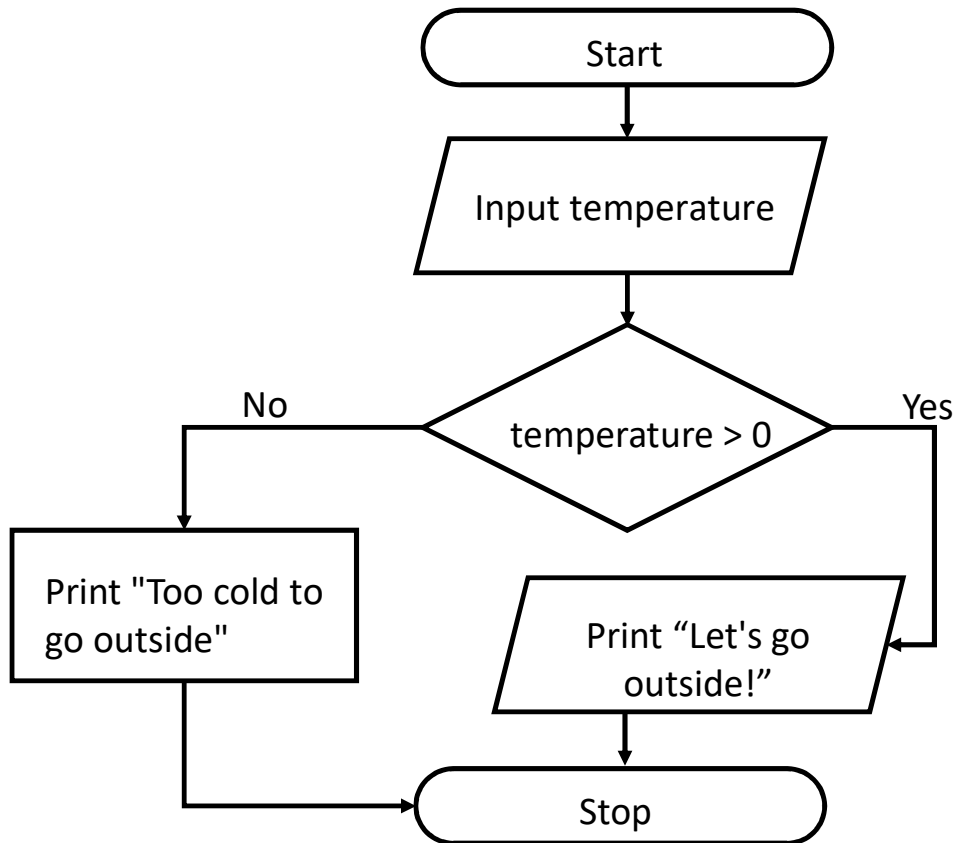
Decision Flowchart



The diamond shape is a **decision** point.

Can express with **if/else statement** in Python

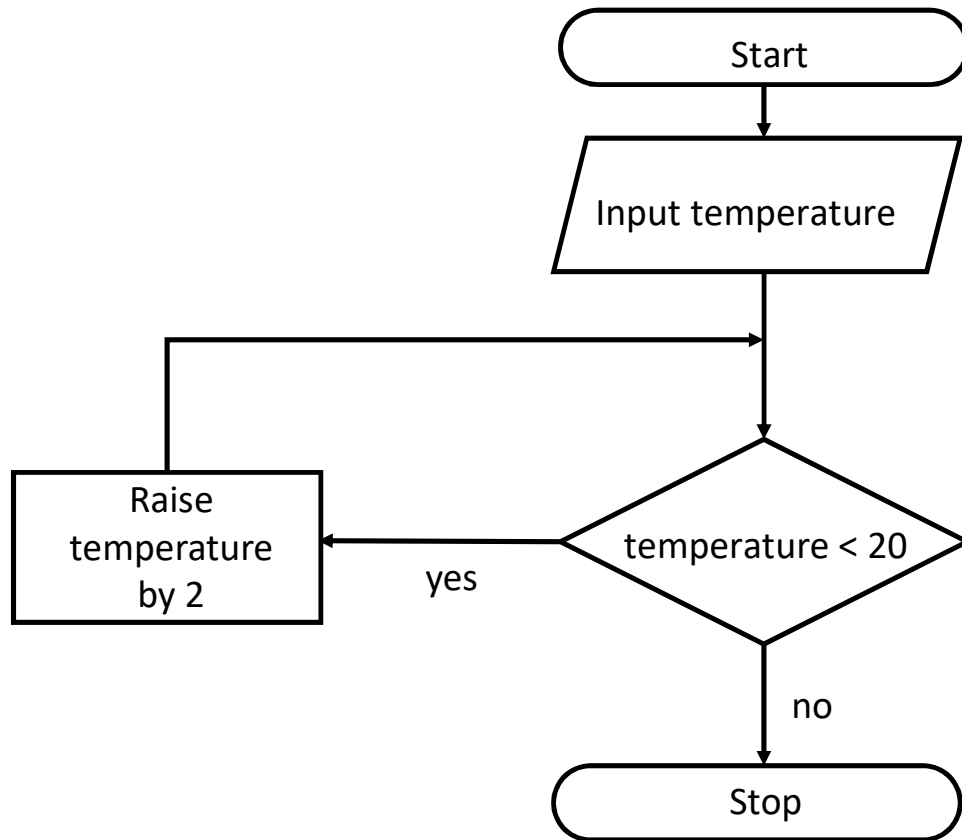
Decision Flowchart



Python Code

```
temperature = float(input("Temperature: "))  
if temperature > 0:  
    print("Let's go outside!")  
else:  
    print("Too cold to go outside")
```

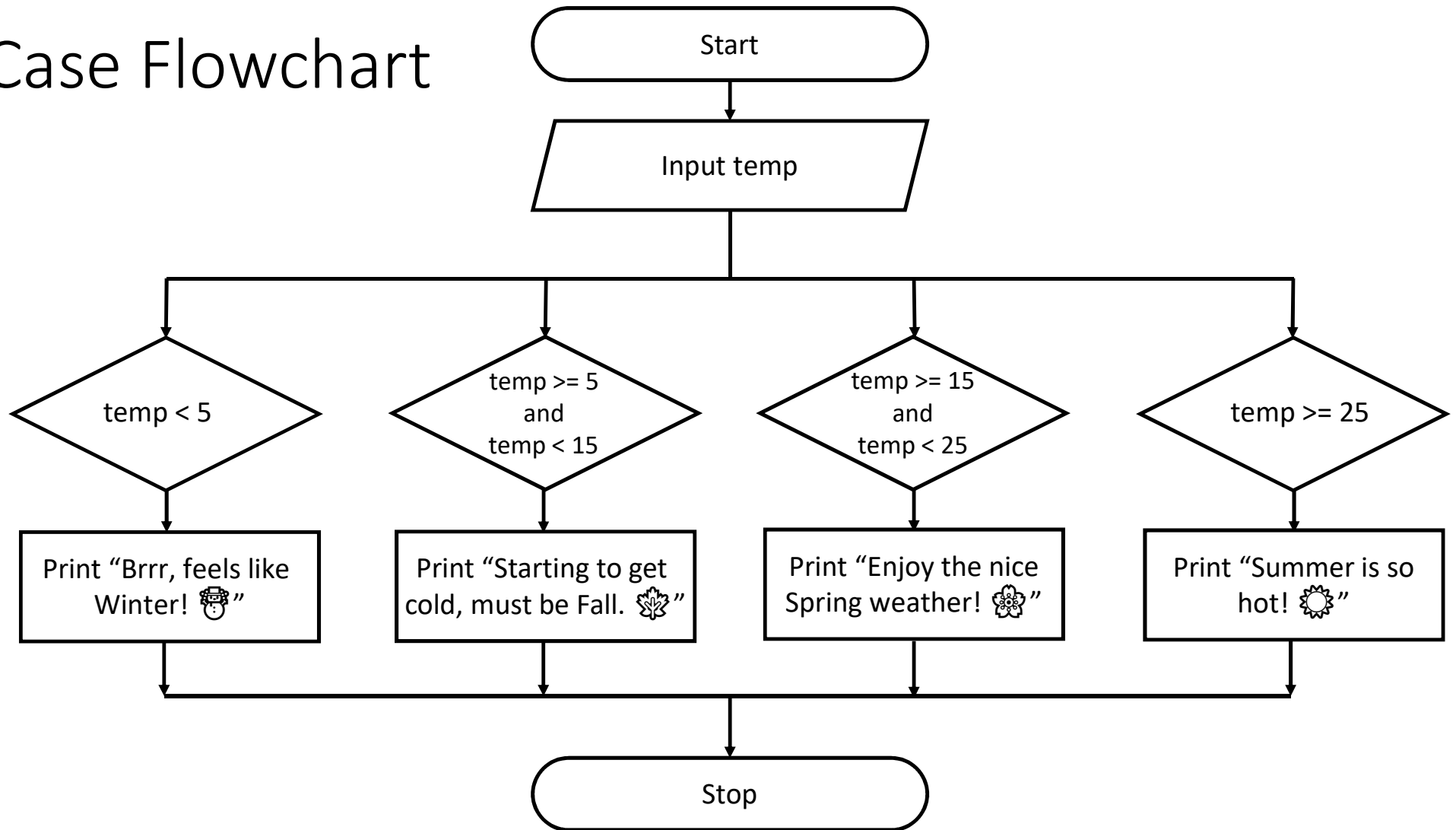
Repetition Flowchart



Python Code

```
temperature = float(input("Temperature: "))  
while temperature < 20:  
    temperature += 2
```

Case Flowchart



Case Flowchart: Python Code

```
temp = float(input("Temperature:"))
```

```
if temp < 5:
```

```
    print("Brrr, feels like Winter! ❄️")
```

```
elif temp >= 5 and temp < 15:
```

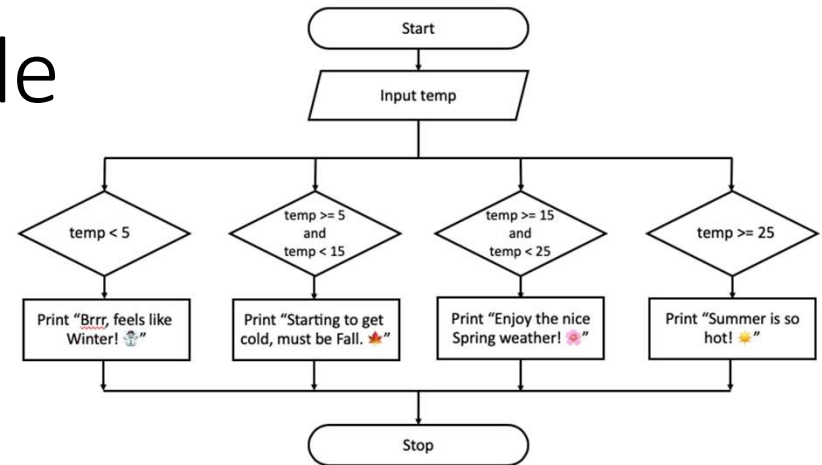
```
    print("Starting to get cold, must be Fall. 🍁")
```

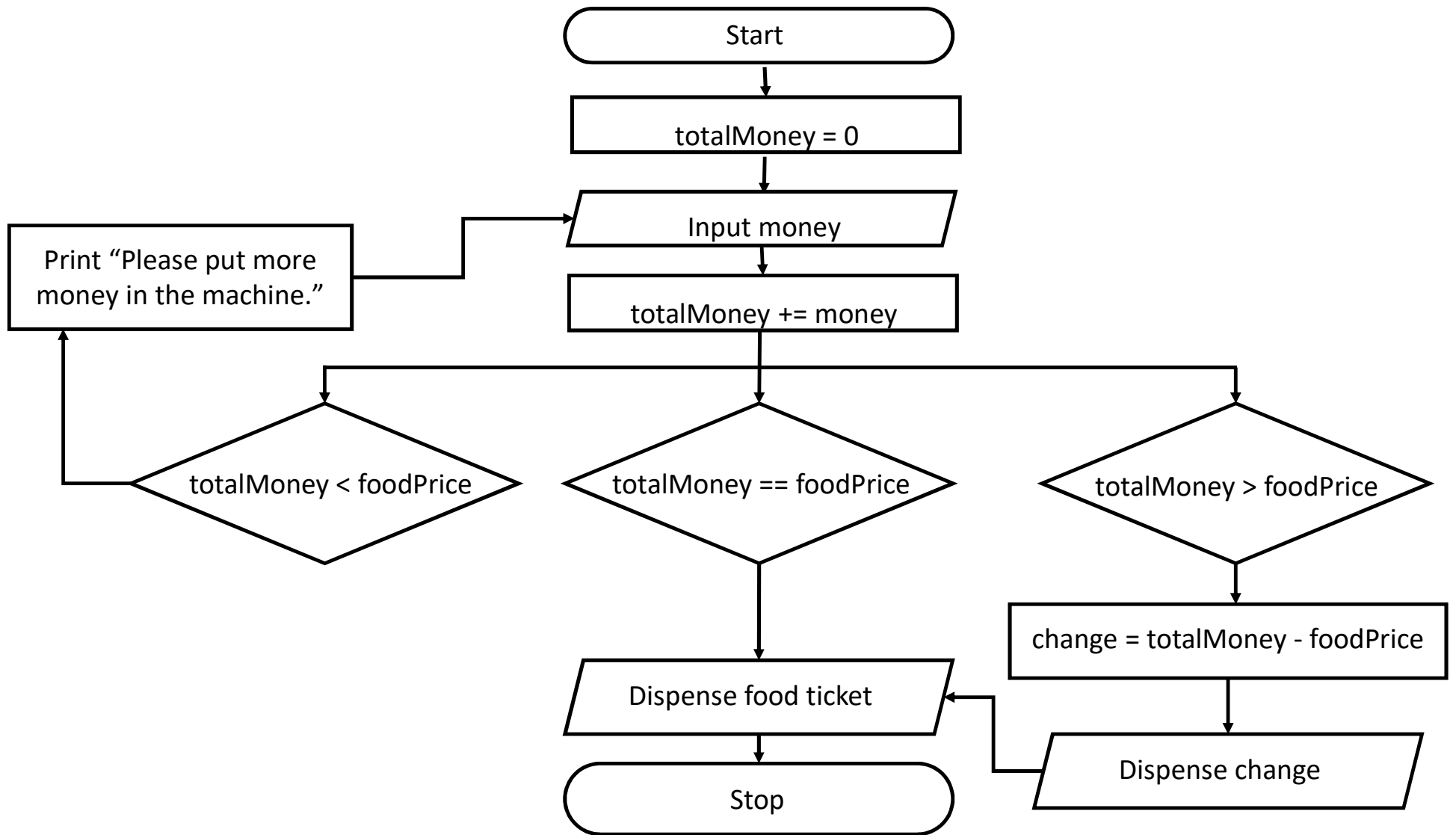
```
elif temp >= 15 and temp < 25:
```

```
    print("Enjoy the nice Spring weather! 🌸")
```

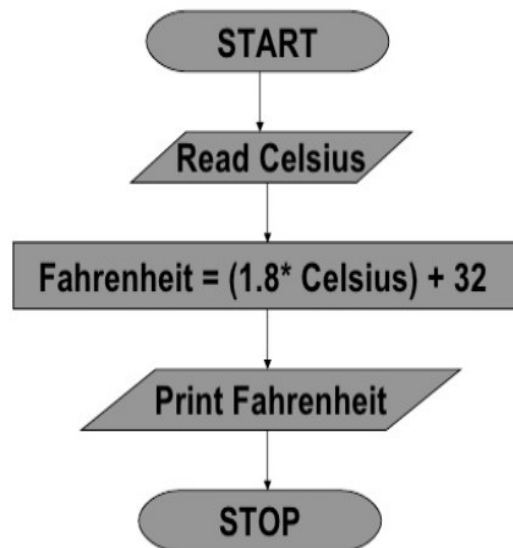
```
else:
```

```
    print("Summer is so hot! ☀️")
```



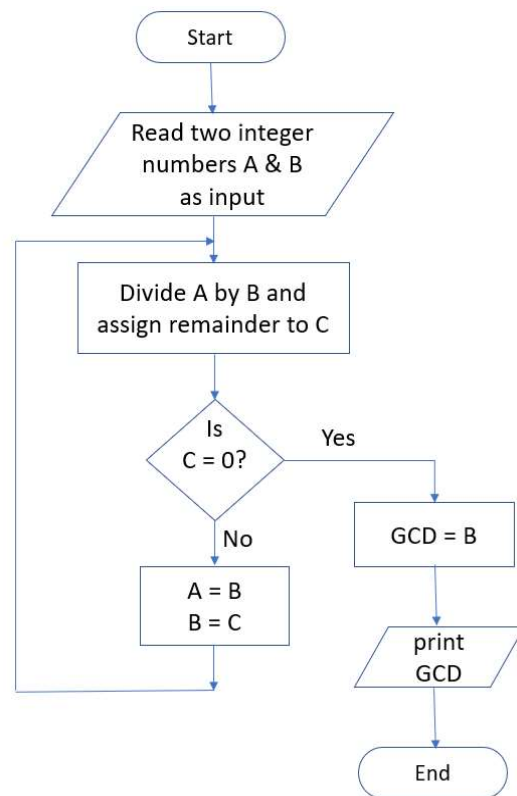


Write a program for the following flowchart:



- Write Python code (without using a function) to convert temperature from Celsius to Fahrenheit.
- The Python code should be accurate and should compile and run successfully.

Write a program for the following flowchart:



- This flowchart corresponds to calculation of the greatest common divisor (GCD) of two numbers using the Euclidian method.
- Write corresponding Python code (without using a function) to calculate the greatest common divisor of two integers A & B using the Euclidian method.

Solution – gcd.py

```
a = int(input("Enter A: "))  
b = int(input("Enter B: "))  
gcd = 0
```

```
while(a > 0 and b > 0):  
    c = a%b  
    if c == 0:  
        gcd = b  
        break  
    a = b  
    b = c
```

```
print("The greatest common divisor is: ", gcd)
```