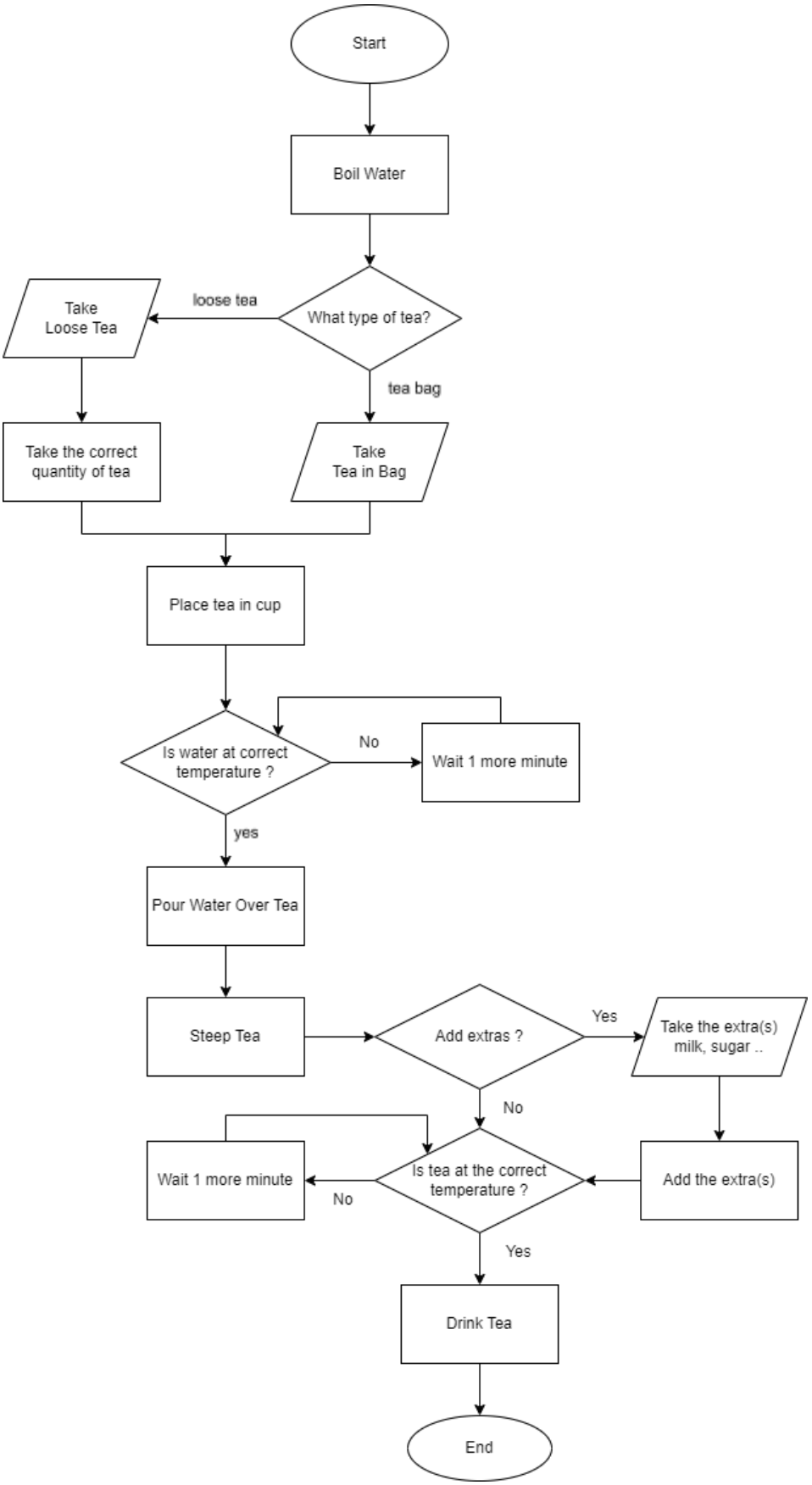
# Flowcharts

*Correction*

# Exercise 1-1

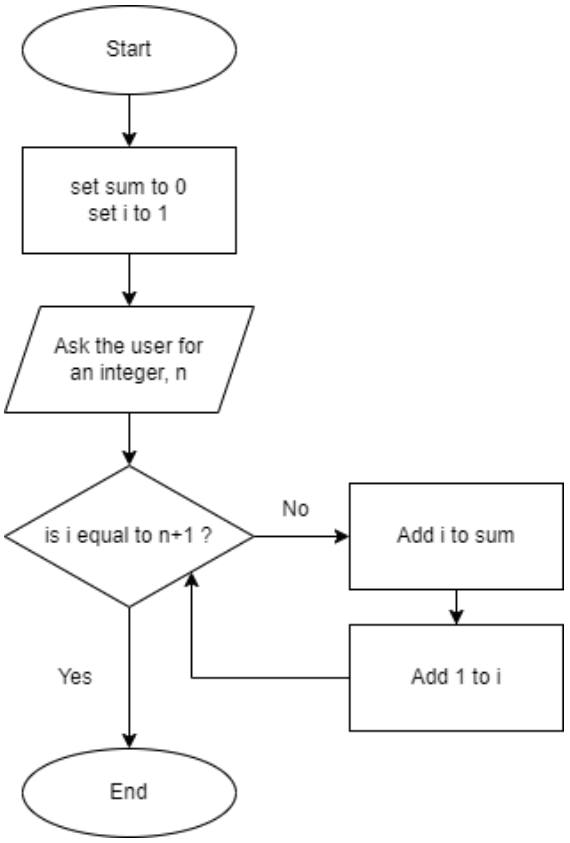

Start
Boil Water
What type of tea?
loose tea
Take
Loose Tea
tea bag
Take the correct
quantity of tea
Take
Tea in Bag
Place tea in cup
Is water at correct
temperature ?
No
Wait 1 more minute
yes
Pour Water Over Tea
Steep Tea
Add extras ?
Yes
Take the extra(s)
milk, sugar ..
No
Wait 1 more minute
Is tea at the correct
temperature ?
No
Add the extra(s)
Yes
Drink Tea
End

## Exercise 1-2

Boil Water

```
ASK "What type of tea?"
IF tea bag THEN
        Prepare black tea bag
ELSE
        Measure the quantity of tea needed
END IF

Place tea in cup or teapot

IF water temperature is right THEN
        Pour water over tea
ELSE
        Wait until water reaches right temperature
        Pour water over tea
END IF

Steep tea for required time
Remove tea bag or strain tea leaves

ASK "Add extras like milk, sugar, honey, or lemon?"
IF yes THEN
        Add extras as preferred
        Stir tea
END IF

IF tea is at drinkable temperature THEN
        Drink tea
ELSE
        Wait until tea cools down to drinkable temperature
        Drink tea
END IF
```

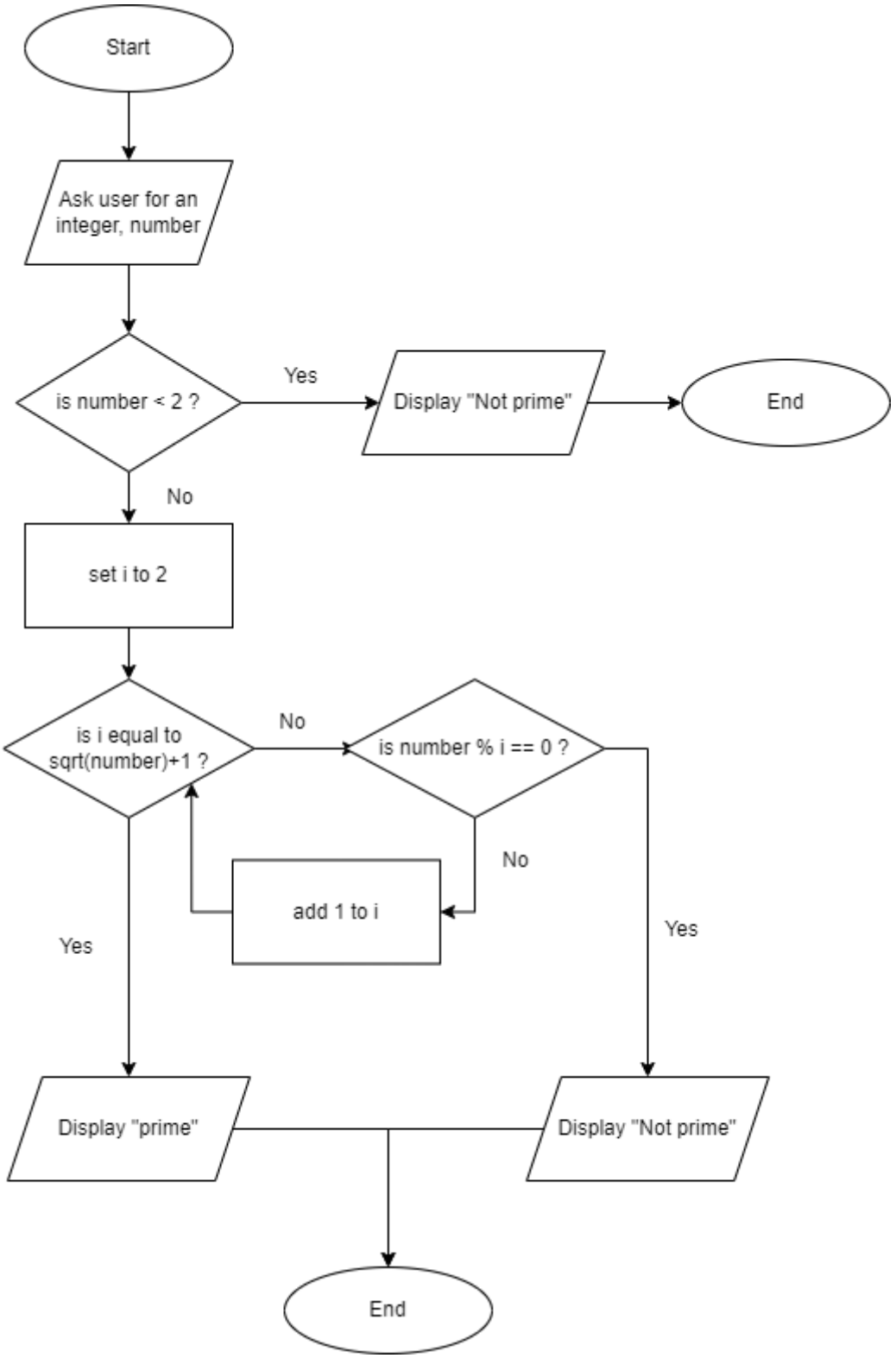
## Exercise 2




```
SET sum TO 0
ASK the user for an integer, N
FOR i FROM 1 TO N DO
        ADD i TO sum
END FOR
```

```python
n = int(input("Enter a number:"))
sum_ = 0
for i in range(1, n+1):
    sum_ += i
```

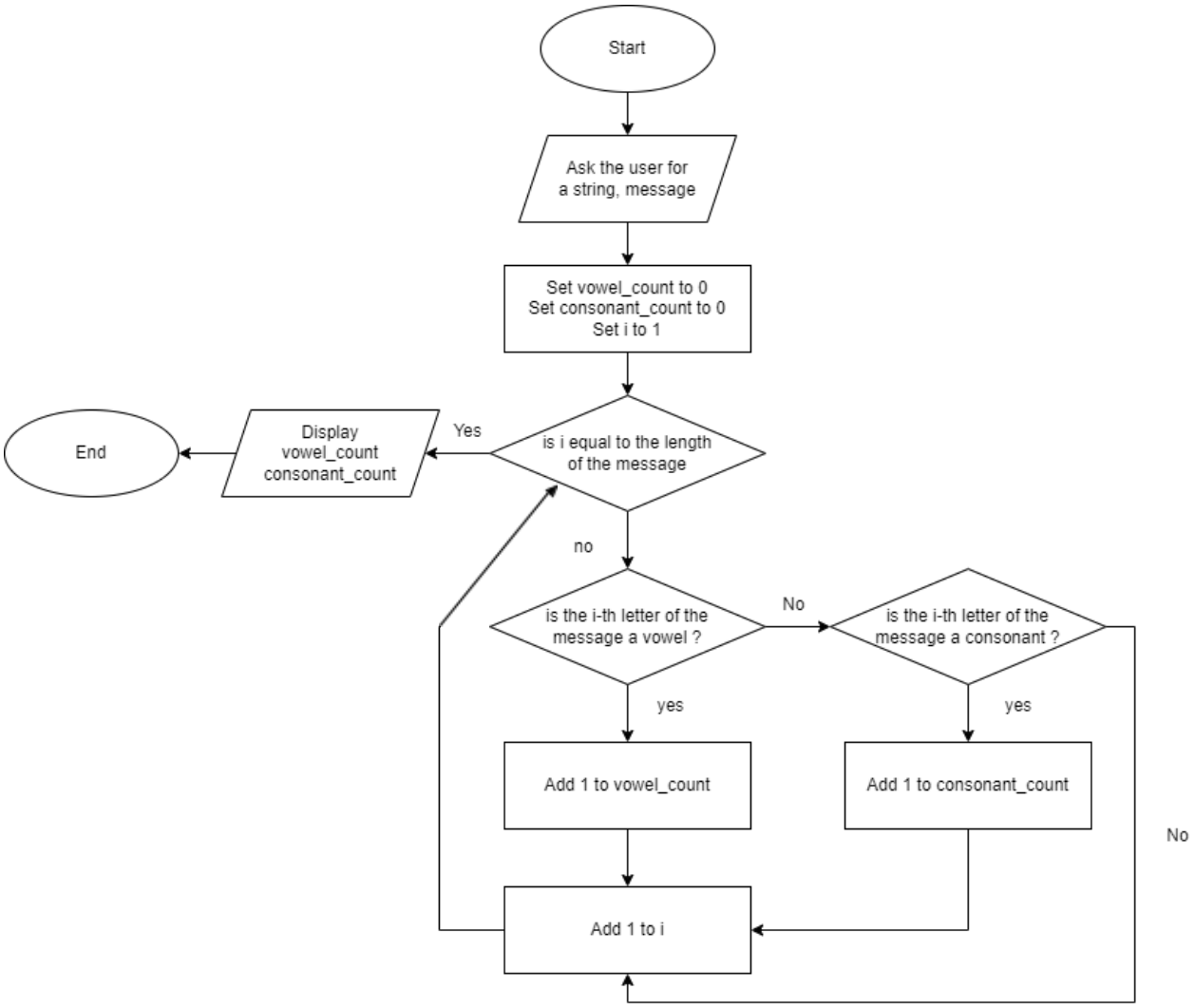
## Exercise 3


Start
Ask user for an integer, number
is number < 2 ?
Yes
Display "Not prime"
End
No
set i to 2
is i equal to sqrt(number)+1 ?
No
is number % i == 0 ?
No
add 1 to i
Yes
Yes
Display "prime"
Display "Not prime"
End

```
ASK the user for an integer and SET number TO the input
SET is_prime TO True
IF number < 2 THEN
        DISPLAY "Not prime"
ELSE
        FOR i FROM 2 TO sqrt(number) DO
                IF number % i == 0 THEN
                        SET is_prime TO False
                        EXIT
                END IF
        END FOR
END IF
IF is_prime equal to True THEN
        DISPLAY "Prime"
ELSE
        DISPLAY "Not Prime"
END IF
```

```python
prime = True
if number < 2:
    prime = False
else:
    for i in range(2, int(number**0.5)+1):
        if number % i == 0:
            prime = False
            break
if prime:
    print("Prime")
else:
    print("Not Prime")
```

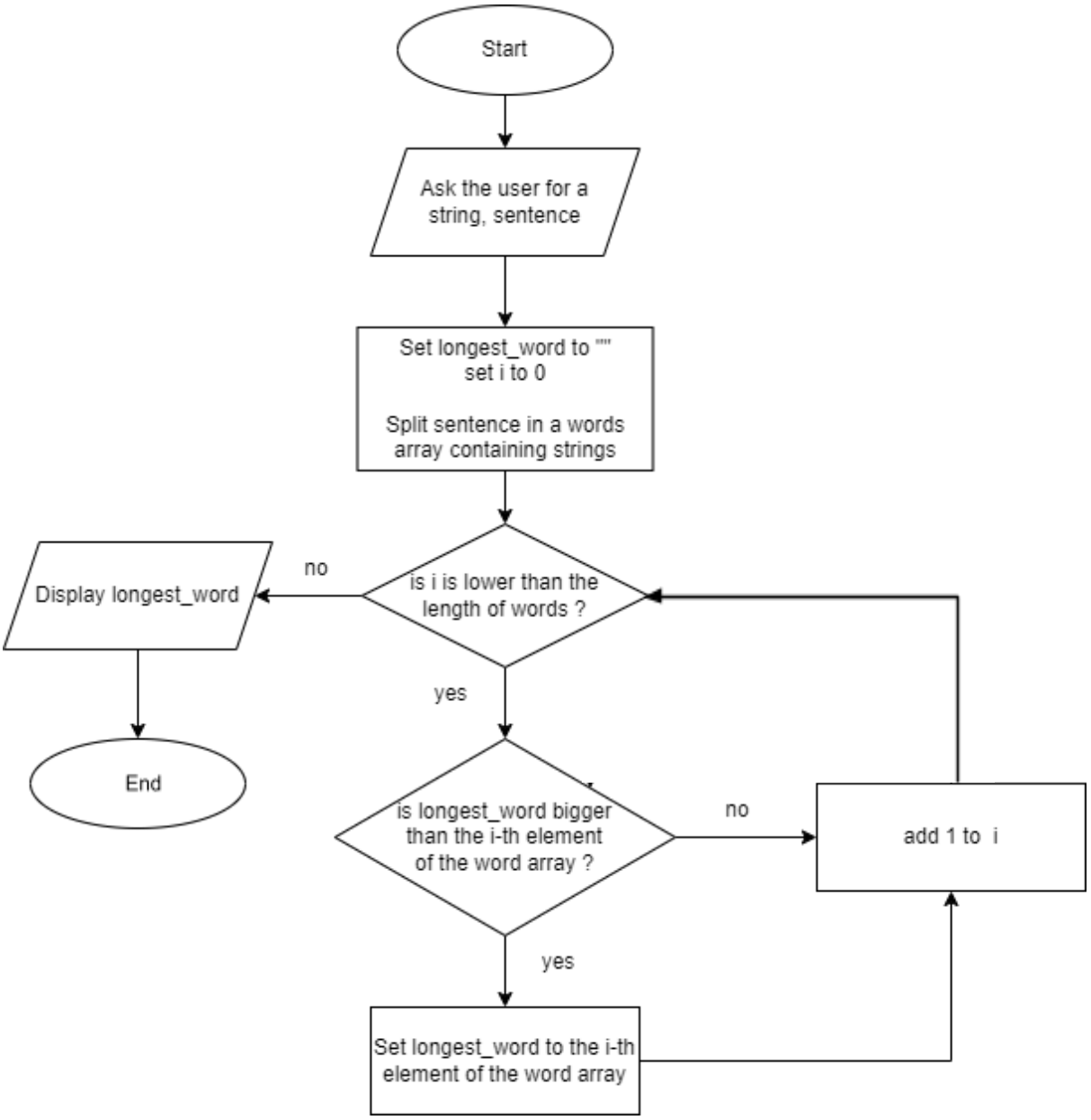
## Exercise 4




```
ASK the user for a string, message
SET vowel_count TO 0
SET consonant_count TO 0
FOR each character in message DO
        IF character is a vowel THEN
                INCREMENT vowel_count
        ELIF character is a consonant THEN
                INCREMENT consonant_count
        END IF
END FOR
PRINT vowel_count, consonant_count
END
```

```python
string = input("Enter a string: ")
vowel_count, consonant_count = 0, 0
for char in string:
    if char.lower() in 'aeiou':
        vowel_count += 1
    elif char.isalpha():
        consonant_count += 1
print("Vowels:", vowel_count, "Consonants:", consonant_count)
```

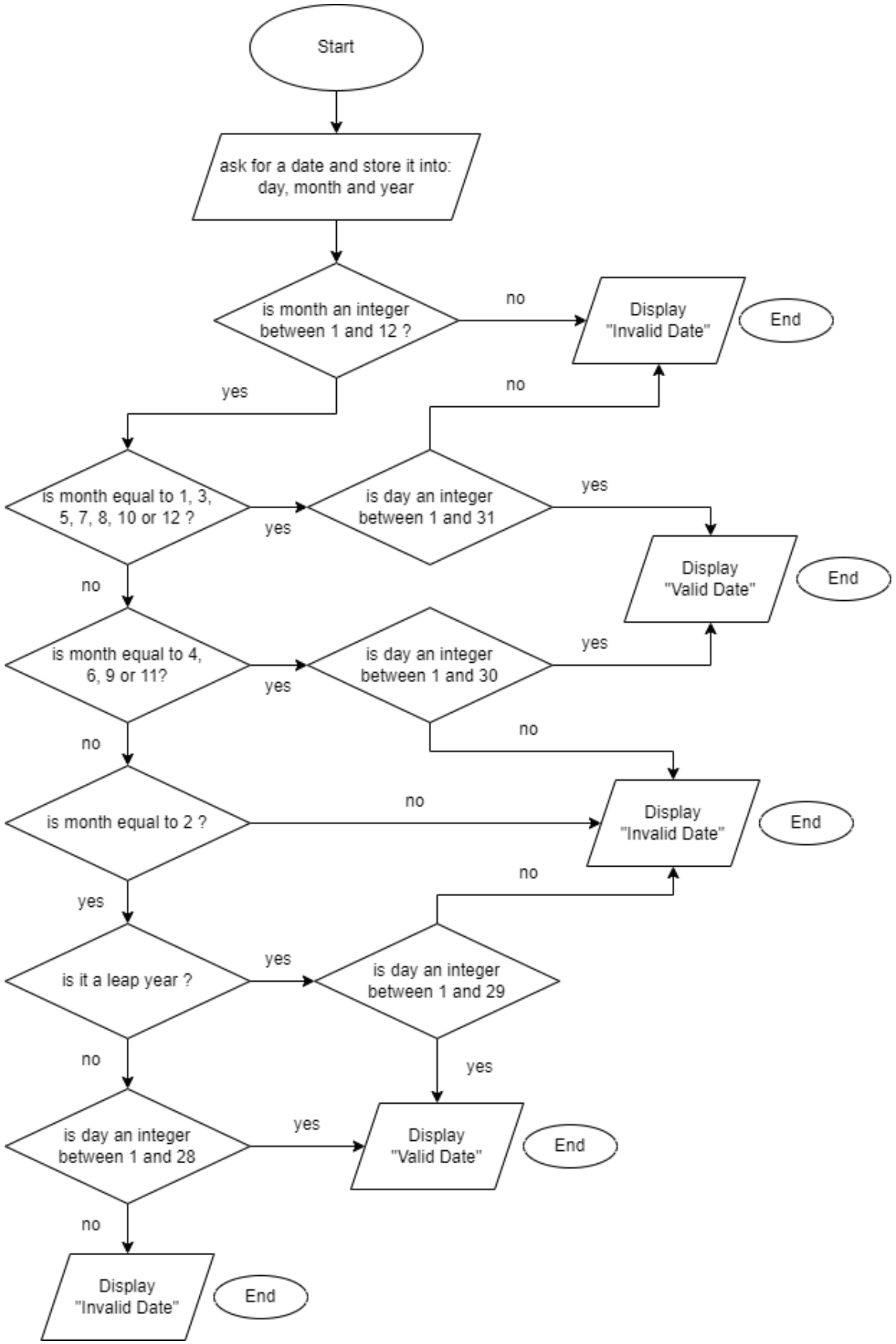
## Exercise 5



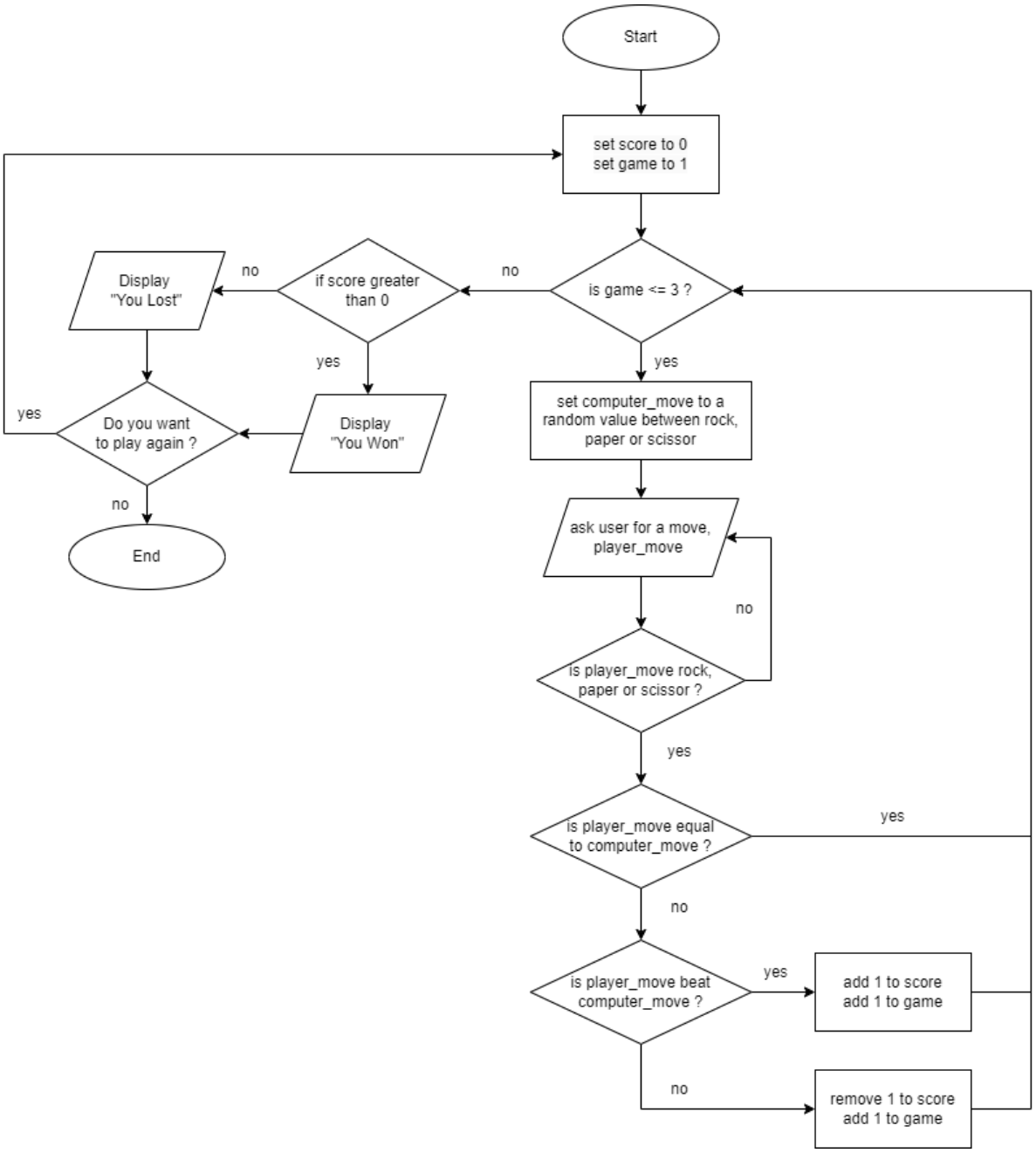
START
ASK the user for a string, sentence
SET words TO an arrays containing the words of the sentence string
SET longest_word TO an empty string
FOR each word IN words DO
        IF the length of the word > the length of the longest_word
                SET longest_word TO word
        END IF
END FOR
DISPLAY longest_word
END

```python
sentence = input("Enter a sentence: ")
words = sentence.split()
longest_word = ""
for word in words:
    if len(word) > len(longest_word):
        longest_word = word
print("Longest word:", longest_word)
```

## Exercise 6


Start
ask for a date and store it into: day, month and year
is month an integer between 1 and 12 ?
no
Display "Invalid Date"
End
yes
no
is month equal to 1, 3, 5, 7, 8, 10 or 12 ?
yes
is day an integer between 1 and 31
yes
Display "Valid Date"
End
no
is month equal to 4, 6, 9 or 11?
yes
is day an integer between 1 and 30
yes
no
is month equal to 2 ?
no
Display "Invalid Date"
End
yes
no
is it a leap year ?
yes
is day an integer between 1 and 29
yes
no
is day an integer between 1 and 28
yes
Display "Valid Date"
End
no
Display "Invalid Date"
End

# Exercise 7


Start
set score to 0
set game to 1
is game <= 3 ?
no
if score greater than 0
no
Display "You Lost"
yes
Display "You Won"
yes
Do you want to play again ?
yes
no
End
yes
set computer_move to a random value between rock, paper or scissor
ask user for a move, player_move
no
is player_move rock, paper or scissor ?
yes
is player_move equal to computer_move ?
yes
no
is player_move beat computer_move ?
yes
add 1 to score
add 1 to game
no
remove 1 to score
add 1 to game