CS1002 – Programming Fundamentals

Lecture # 06
Tuesday, September 06, 2022
FALL 2022
FAST – NUCES, Faisalabad Campus

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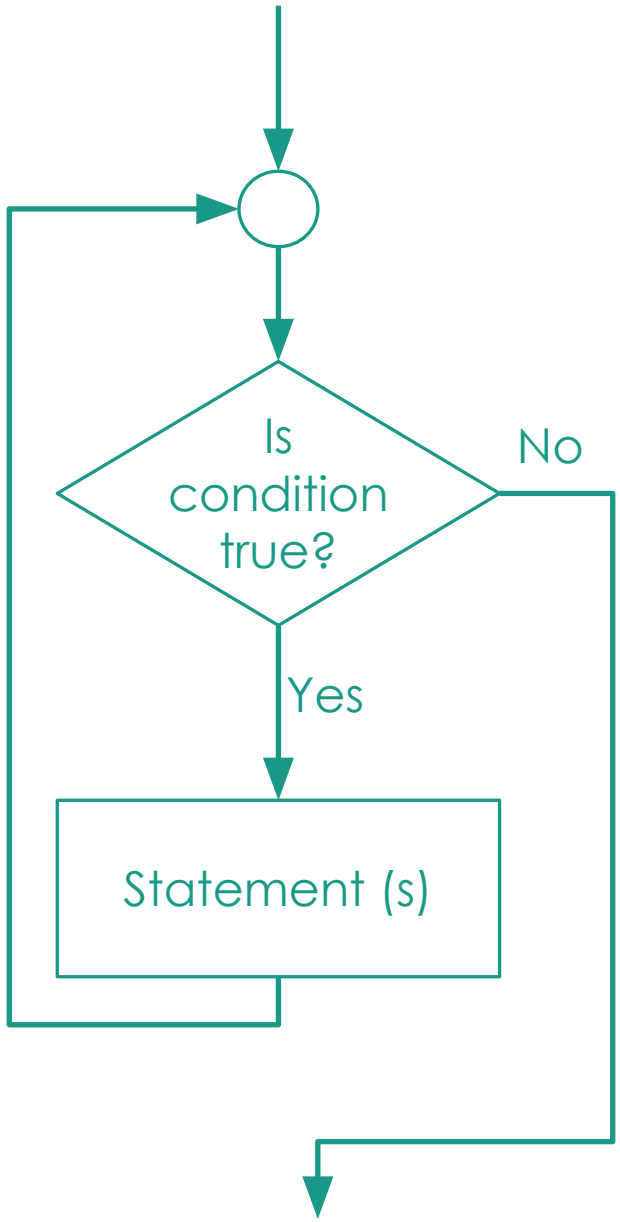
Looping flowchart

```
While condition is true then
   Statement(s)
End while
```

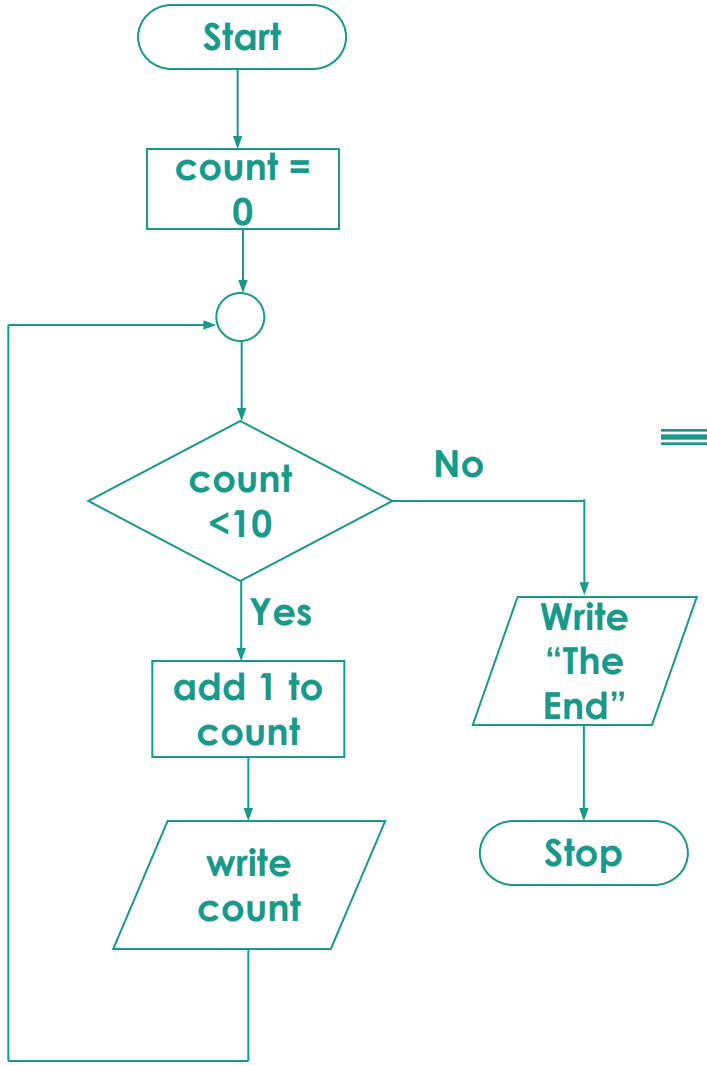


The Repetition Structure

- In flowcharting one of the more confusing things is to separate selection from looping
- This is because both structures use the diamond as their control symbol
- In pseudocode we avoid this by using specific keywords to designate looping

WHILE/ENDWHILE

WHILE / ENDWHILE




```
count = 0
WHILE count < 10
      ADD 1 to count
      WRITE count
ENDWHILE
WRITE "The End"
```

Mainline

```
count = 0
WHILE count < 10
      DO Process
ENDWHILE
WRITE "The End"
```

Process

```
ADD 1 to count
WRITE count
```

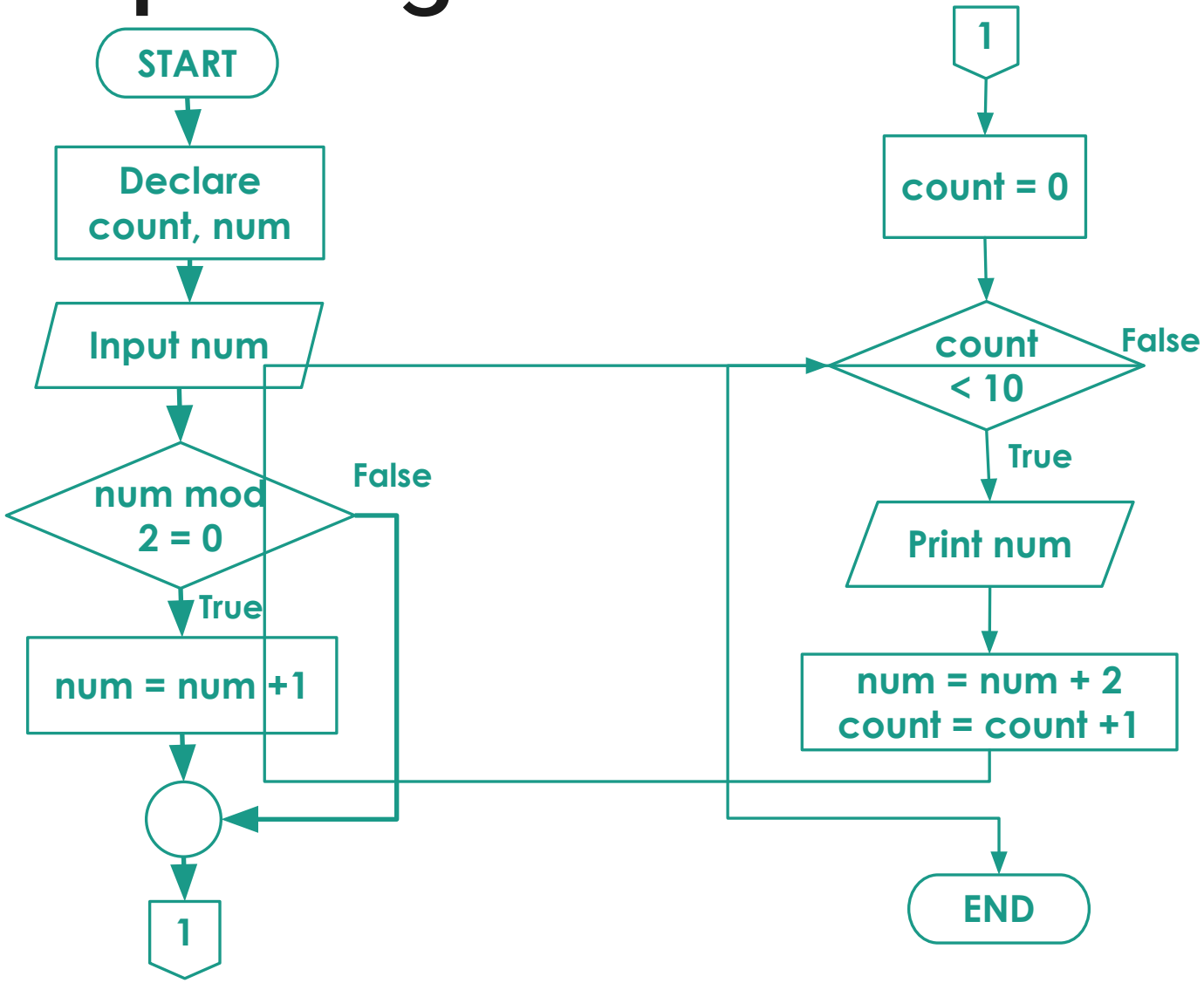
Example 2:

- Write pseudocode and draw a flowchart that will
- Print first 10 odd numbers starting from the number provided by the user.
- If it is even number then start from the next odd number if it is odd number then start with the current number
  - E.g. the user input 10 then the out put will be
    - 11 13 15 17 19 21 23 25 27 29
  - If the user input 5 then the output will be
    - 5 7 9 11 13 15 17 19 21 23
- **Hint:** Use number mod 2 = 0 to determine the even number

Pseudocode for printing 10 odd numbers

```
1.  START
2.  declare count, num
3.  input num
4.  if num mod 2 = 0 then
    4.1  num = num + 1
5.  end if
6.  count = 0
7.  while count < 10
    7.1  print num
    7.2 num = num + 2
    7.3  count = count +1
8.  end while
9.  END
```

Flow chart for printing 10 odd numbers



Example 3

- Write a pseudocode and draw a flowchart to
- Read an employee number (EMPNO), employee name (NAME), overtime hours worked (OVERTIME), hours absent (ABSENT) and
- Determine the bonus payment (PAYMENT) for 10 employees one by one

Bonus Schedule	
OVERTIME – (2/3)*ABSENT	**Bonus Paid**
>40 hours	5000
>30 but ≤ 40 hours	4000
>20 but ≤ 30 hours	3000
>10 but ≤ 20 hours	2000
≤ 10 hours	1000

Example 4

- Write a pseudocode and draw a flowchart
- that will get 10 numbers from the user and print their average.
- Use only one number as input i.e. n1

- **Hint:** Use loop to get input in n1 and add it to Sum

Exercise Program 5: Square/cube

- Write a pseudocode and draw a flowchart for a program that will
  - Get one number from user
  - Print its square if it is an even number
  - Print its cube if it is and odd number
- The loop will run 5 times

Questions