PROGRAMMING USING C

Week 0 – Practice Session Coding

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Ex. No.: 1

Date: 26/9/24

Calculate Area and Perimeter

Write an Algorithm and draw a Flowchart to Calculate the area and perimeter of a square.
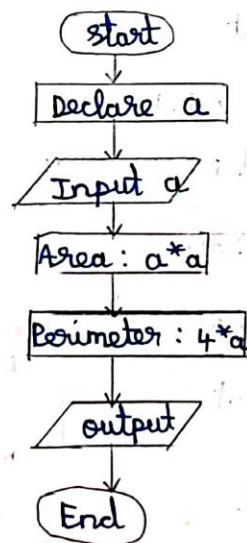
Algorithm:

step 1: Start

step 2: Declare Variable a

step 3: Input a

step 4: Area : a*a

step 5: Perimeter : 4*a

step 6: End

Flowchart:

```
        ┌─────────┐
        │  Start  │
        └────┬────┘
             ↓
     ┌───────────────┐
     │  Declare  a   │
     └───────┬───────┘
             ↓
     ╱───────────────╱
     ╱   Input a     ╱
     ╱───────────────╱
             ↓
     ┌───────────────┐
     │  Area : a*a   │
     └───────┬───────┘
             ↓
     ┌───────────────┐
     │ Perimeter: 4*a│
     └───────┬───────┘
             ↓
     ╱───────────────╱
     ╱   output      ╱
     ╱───────────────╱
             ↓
        ┌─────────┐
        │   End   │
        └─────────┘
```

output
a = 2
Area = 4
Perimeter = 8.

Ex. No.: 2

Date: 26/9/24

Days to Year Conversion

Write an Algorithm and draw a Flowchart to convert the given days into years & months.

Algorithm:

step 1: start
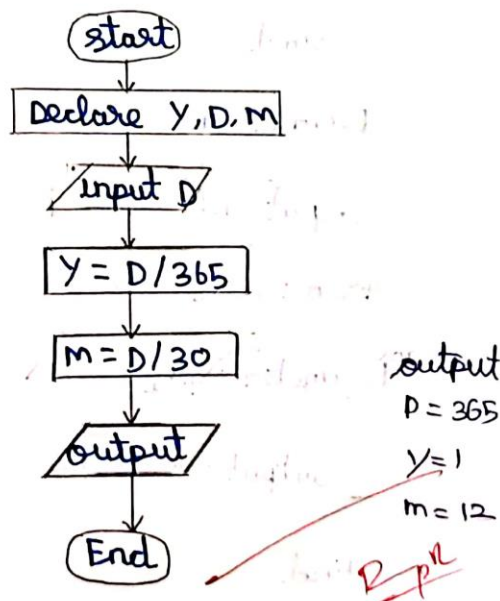
step 2: Declare variables Days, month, Years. (Input: Days)

step 3: Year = Days / 365

step 4: Month = Days / 30

step 5: Declares output

step 6: End

Flowchart:

```
        ┌─────────┐
        │  start  │
        └────┬────┘
             │
     ┌───────▼────────┐
     │ Declare Y, D, M│
     └───────┬────────┘
             │
        ┌────▼─────┐
       / input D  /
      └─────┬─────┘
            │
     ┌──────▼──────┐
     │  Y = D/365  │
     └──────┬──────┘
            │
     ┌──────▼──────┐
     │  M = D/30   │
     └──────┬──────┘
            │
       ┌────▼─────┐
      / output  /
     └─────┬─────┘
           │
        ┌──▼──┐
        │ End │
        └─────┘
```

output
P = 365
Y = 1
m = 12

R.p.r

Ex. No.: 3

Date: 3/10/24

Prime Number

Write an Algorithm and draw a Flowchart to check whether the given number is Prime or not.

Algorithm: start :

step 1 : Declare i, n;

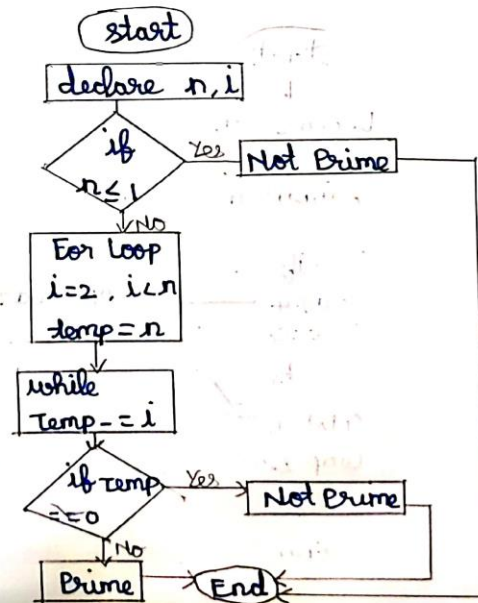step 2 : If n ≤ 1 ; Not Prime

step 3 : For loop i = 2 to n-1

step 4 : temp = n ; temp -= i

step 5 : if temp == 0 ; Not Prime

step 6 : Declare output, Prime

step 7 : ow End.

Flowchart:

start

declare n, i

if n ≤ 1 — Yes → Not Prime

No

For Loop
i = 2, i < n
temp = n

while
Temp -= i

if temp == 0 — Yes → Not Prime

No

Prime → End

output
n = 5
Prime

Ex. No.: 4

Date: 3/10/24

Leap Year

Write an Algorithm and draw a Flowchart to check whether the given year is Leap year or not.

Algorithm:

step 1: start

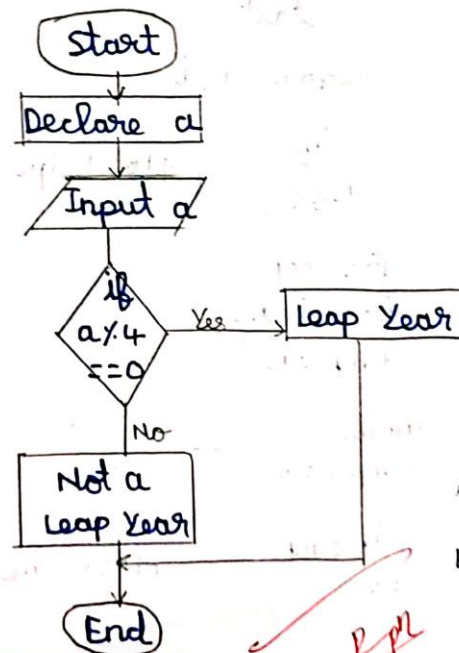step 2: Declare a

step 3: Input a

step 4: If (a%4 ==0) (Leap Year)

step 5: else (Not Leap Year)

step 6: output

step 7: end

Flowchart:

Start

Declare a

Input a

if a%4 ==0   Yes → Leap Year

No

Not a Leap Year

End

output
Year: 2024
Leap Year

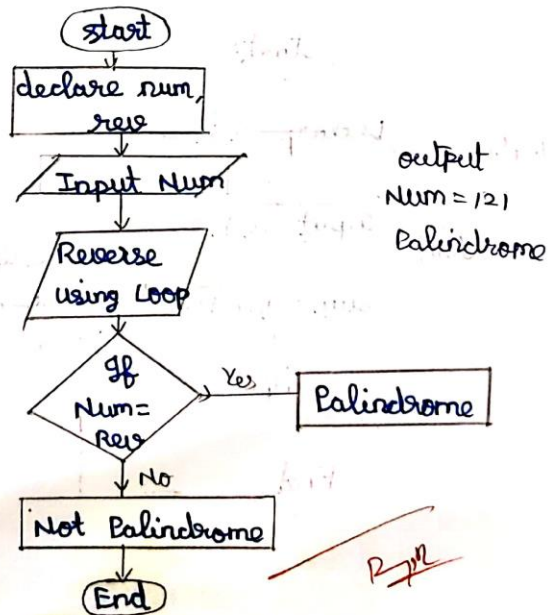Ex. No.: 5   Date: 3/10/24

Palindrome Number

Write an Algorithm and draw a Flowchart to check whether the given number is palindrome number or not.

Algorithm:

step 1: start

step 2: Declare num, rev

step 3: Input num

step 4: reverse using for loop

step 5: If num = rev

step 6: else

step 7: output

step 8: End

Flowchart:

output
Num = 121
Palindrome

Ex. No.: 6

Date: 3/10/24

Sum of Digits

Write an Algorithm and draw a Flowchart to calculate the sum of digits in the given number.

Algorithm:

step 1: start

step 2: Declare a, b, c

step 3: Input a, b, c

step 4: sum = a + b + c

step 5: Declare output

step 6: End

Flowchart:

```
        ┌─────────┐
        │  start  │
        └────┬────┘
             ↓
     ┌─────────────────┐
     │ Declare  a, b, c │
     └────────┬─────────┘
              ↓
      ╱─────────────╱
     ╱ Input  a, b, c╱
    ╱───────┬───────╱
            ↓
     ┌──────────────┐
     │ sum = a+b+c  │
     └──────┬───────┘
            ↓
      ╱──────────╱
     ╱ output   ╱
    ╱─────┬────╱
          ↓
     ┌─────────┐
     │   End   │
     └─────────┘
```

output
a = 1
b = 2
c = 3

sum = 1+2+3
    = 6.