

# Programming Fundamentals

## Digital assignment;

1. Algorithm and program for weather station in Chennai has recorded rainfall of first ten days count and print the state of rainfall value less than 12 low and 12-20 medium and more than 20 high

### Algorithm

Step 1: start

Step 2: Declare  $i$ ,  $r[10]$ ,  $less=0$ ,  $medium=0$ ,  $high=0$ ;

Step 3: using for loop assume  $i=0$ ,  $i < 9$  and

Step 4: check condition if  $i=0$  and  $i$  should less than 9

Step 5: check condition array  $r[i]$  should less than <sup>or</sup> equal to 12 By using if statement and increment <sup>less</sup>

Step 6: If condition fails get into else if statement and check condition if  $r[i]$  is <sup>greater</sup> less than 12 and  $r[i] < 20$  if display result and increment  $medium++$

Step 7: If if condition fails get into else if block and check  $r[i] > 20$  and display result and increment the high.



Step 8: Display, less rainfall days and days which have medium and high rainfall.

Step 9: Stop.

Program:

```
#include <stdio.h>
```

```
void main()
```

```
{
```

```
int i, n[10], less=0, medium=0, high=0;
```

```
for (i=0; i<=9; i++)
```

```
{
```

```
printf("Enter the measurement of rainfall in cm");
```

```
scanf("%d", &n[i]);
```

```
if (n[i] <= 12)
```

```
{
```

```
printf("it has low rainfall")
```

```
less++;
```

```
}
```

```
else if (n[i] > 12 && n[i] < 20)
```

```
{
```

```
printf("it has medium rainfall")
```

```
medium++;
```



```
else if (n[i] >= 20)
```

```
{ Printf("it has high rainfall");
```

```
    high++;
```

```
} }
```

```
Printf("%d days had less rainfall\n", less);
```

```
Printf("%d days had medium rainfall\n", medium);
```

```
Printf("%d days had high rainfall\n", high);
```

```
getch();
```

```
}
```

2.) Program for GCD

```
#include <stdio.h>
```

```
void main()
```

```
{ int n1, n2, i, gcd;
```

```
    Printf("enter the two numbers");
```

```
    scanf("%d %d", &n1, &n2);
```

```
    for (i = 2; i <= n1 && i <= n2; ++i)
```

```
{ if (n1 % i == 0 && n2 % i == 0)
```

```
        gcd = i; }
```

```
    Printf("%d is the gcd for this two numbers", gcd);
```

```
    getch();
```

```
}
```



3) Write a Program to find the value of  $\pi$  upto 'n' terms.

$$T_1 = 1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \frac{1}{9} - \frac{1}{11} + \dots$$

```
#include <stdio.h>
```

```
void main()
```

```
{ int i, n
```

```
double p=0;
```

```
for (i=1; i<=10; i++) printf("Enter the number "
```

```
scanf("%d", &n);
```

```
for (i=1; i<=100; i++)
```

```
{ if (i%2 == 0)
```

```
p = p - (4.0/(2*i-1));
```

```
}
```

```
else p = p + (4.0/(2*i-1)); }
```

```
printf("%f\n", p); }
```

```
getch();
```

```
} return 0
```



4. #include <stdio.h>

void main()

{ char n, a, A, b, B, c, C, d, D, e;

printf("enter the grade"); scanf("%c", &n);

If (n == 'a' || n == 'A')

{ printf("this grade have 10% discount"); }

else if (n == 'b' || n == 'B')

printf("this grade have 8% discount");

else if (n == 'c' || n == 'C')

printf("this grade have 6% discount");

else if (n == 'd' || n == 'D')

printf("this grade have 5% discount");

getchar(); }

5.

Program

#include <stdio.h>

void main()

{ int r, h;

float pi = 3.14, a = 0, v = 0;

printf("1 Area of circle\n 2 volume of cylinder\n 3 Area of Sphere\n");



```
scanf("%d", &n);
```

```
printf("enter radius");
```

```
scanf("%d", &r);
```

```
switch(n)
```

```
{ case 1:
```

```
    a =  $\pi * r * r$ ; printf("Area = %.1f", a);  
    break;
```

```
case 2:
```

```
    printf("enter the height"); scanf("%d", &h);
```

```
    v =  $\pi * r * r * h$ ;
```

```
    printf("volume = %.1f", v); break;
```

```
case 3:
```

```
    a =  $4 * \pi * r * r$ ; printf("Area = %.1f", a);
```

```
    break;
```

```
default:
```

```
    printf("invalid choice");
```

```
    getch();
```