**Assignment – 24**

Job Ready Bootcamp in C++, DSA and IOT

**Functions in C++**

1. Define a function to check whether a given number is a Prime number or not.

#include<iostream>

using namespace std;

int prime(int);

int main()

{

int a;

cout<<"Enter a number";

cin>>a;

if(prime(a)==1)

cout<<"Not a prime number";

else

cout<<"Prime number";

}

int prime(int n)

{

int i,flag=0;

for(i=2;i<=n/2;i++)

{

if(n%i==0)

flag=1;

}return flag;

}

OutputEnter a number5

Prime number

2. Define a function to find the highest value digit in a given number.

#include<iostream>

using namespace std;

int high\_dig(int);

int high\_dig(int x){

int max=-1;

while(x){

if(max<x%10)

max=x%10;

x=x/10;

}

return max;

}

int main()

{

int x;

cout<<"Enter a number"<<endl;

cin>>x;

cout<<"Highest digit is "<<high\_dig(x);

return 0;

}

Output:Enter a number457898

Highest digit is 9

3. Define a function to calculate x raised to the power y.

#include<iostream>

using namespace std;

int pow(int,int);

int main()

{

int x,y;

cout<<"Enter two number:";

cin>>x>>y;

cout<<x<<" power "<<" is "<<pow(x,y);

return 0;

}

int pow(int x, int y)

{

int a=1;

while(y--)

{

a=a\*x;

}

return a;

}Output:Enter two number 2 2

2 power is 4

4. Define a function to print Pascal Triangle up to N lines.

#include<iostream>

using namespace std;

int fact(int x)

{

if(x<=0)

return 1;

int fact=1;

for(int i=1;i<=x;i++)

fact=fact\*i;

return fact;

}

int comb(int n,int r)

{

int com=fact(n)/(fact(r)\*fact(n-r));

return com;

}

int main()

{

int n,i,j,k;

cout<<"Enter a number";

cin>>n;

for(i=0;i<n;i++)

{

for(j=0;j<=i;j++)

{

k=0;

if(j==0)

while(k++<=(n/2-i+1))

printf(" ");

printf("%d",comb(i,j));

}

printf("\n");

}

return 0;

}

5. Define a function to check whether a given number is a term in a Fibonacci series or not

6. Define a function to swap data of two int variables using call by reference

#include<iostream>

using namespace std;

void swape(int &x, int &y)

{

int t;

t=x;

x=y;

y=t;

}

int main()

{

int a,b;

cout<<"Enter two number";

cin>>a>>b;

swape(a,b);

cout<<"Swapping number is "<<a<<" "<<b;

}

7. Write a function using the default argument that is able to add 2 or 3 numbers

#include<iostream>

using namespace std;

int sum(int, int, int=0);

int main()

{

int a,b,c;

cout<<"Enter a number";

cin>>a;

cout<<"Enter second number";

cin>>b;

cout<<"Sum of two number is "<<sum(a,b);

cout<<"Enter three number"<<endl;

cin>>a>>b>>c;

cout<<endl<<"Sum of three number is "<<sum(a,b,c);

return 0;

}

int sum(int x,int y, int z)

{

int sum=0;

return x+y+z;

}

8. Define overloaded functions to calculate area of circle, area of rectangle and area of triangle

#include<iostream>

using namespace std;

float area(int r)

{

return 3.14\*r\*r;

}

int area(int l, int b)

{

return l\*b;

}

float area(float bridth, float hight)

{

return (0.5\*bridth\*hight);

}

int main()

{

int r,l,b;

float bridth,hight;

cout<<"Enter radius of a circle";

cin>>r;

cout<<"Area of circle is "<<area(r)<<endl;

cout<<"Enter length and breadth";

cin>>l>>b;

cout<<"Area of rectangle is "<<area(l,b)<<endl;

cout<<"Enter base and hight";

cin>>bridth>>hight;

cout<<"Area of rectangle is "<<area(bridth,hight);

return 0;

}

9. Write functions using function overloading to find a maximum of two numbers and both the numbers can be integer or real.

#include<iostream>

using namespace std;

int max(int a, int b)

{

if(a>b)

return a;

else

return b;

}

float max(float x, float y)

{

if(x>y)

return x;

else

return y;

}

int main()

{

int a,b;

float x,y;

cout<<"Enter two integer numbers"<<endl;

cin>>a>>b;

cout<<"Greater number is "<<max(a,b);

cout<<"Enter two real number"<<endl;

cin>>x>>y;

cout<<"Greater number is "<<max(x,y);

return 0;

}

10. Write functions using function overloading to add two numbers having different data types

#include<iostream>

using namespace std;

int add(int a, int b)

{

return a+b;

}

float add(float x, float y)

{

return x+y;

}

float add(int a, float x)

{

return a+x;

}

int main()

{

int a,b;

float x,y;

cout<<"Enter two integer numbers"<<endl;

cin>>a>>b;

cout<<"Addition is "<<add(a,b);

cout<<endl<<"Enter two real number"<<endl;

cin>>x>>y;

cout<<"Addition is "<<add(x,y);

cout<<endl<<"Addition of "<<a<<" and "<<x<<" is "<<add(a,x);

return 0;

}