**Assignment - 24 Job Ready Bootcamp in C++, DSA and IOT MySirG**

**Functions in C++**

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

Sol – 1.

#include<iostream>

using namespace std;

int main()

{

int a,i;

cout<<"Enter a number : ";

cin>>a;

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

{

if(a%i==0)

break;

}

if(i>a/2&&a!=1&&a!=0)

cout<<a<<" is a prime number";

else

cout<<a<<" is not a prime number";

return 0;

}

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

Sol – 2.

#include<iostream>

using namespace std;

int main()

{

int n,l=0;

cout<<"Enter a number : ";

cin>>n;

if(n<0)

n=n\*(-1);

while(n!=0)

{

if(n%10>l)

l=n%10;

n=n/10;

}

cout<<"Highest digit is "<<l;

return 0;

}

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

Sol – 3.

#include<iostream>

using namespace std;

int main()

{

int x,n,res=1;

cout<<"Enter a number and it's power : ";

cin>>x>>n;

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

{

res=res\*x;

}

cout<<"Result : "<<res;

return 0;

}

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

Sol – 4.

#include<iostream>

using namespace std;

int combination(int,int);

int fact(int);

void pascal\_triangle(int);

int main()

{

int x;

cout<<"Enter a number : ";

cin>>x;

pascal\_triangle(x);

return 0;

}

void pascal\_triangle(int n)

{

int i,j,r,k;

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

{

r=0,k=1;

for(j=0;j<=2\*n-2;j++)

{

if(j>=n-1-i&&j<=n-1+i&&k)

{

cout<<" "<<combination(i,r);

r++;

k=0;

}

else

{

cout<<" ";

k=1;

}

}

cout<<"\n";

}

}

int fact(int n)

{

int fact=1;

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

{

fact\*=i;

}

return fact;

}

int combination(int n, int r)

{

int comb;

comb=fact(n)/(fact(r)\*fact(n-r));

return comb;

}

5. Define a function to check whether a given number is a term in a Fibonacci series or

not.

Sol – 5.

#include<iostream>

using namespace std;

int check\_fib(int);

int main()

{

int n;

cout<<"Enter a number : ";

cin>>n;

if(check\_fib(n)==1)

cout<<n<<" is there in fibonacci series";

else

cout<<n<<" is not there in fibonacci series";

return 0;

}

int check\_fib(int n)

{

int a=1,b=0,c=0;

while(n>=c)

{

if(c==n)

return 1;

c=a+b;

a=b;

b=c;

}

return 0;

}

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

Sol – 6.

#include<iostream>

using namespace std;

void swapp(int &,int &);

int main()

{

int a,b;

cout<<"Enter Value of a and b : ";

cin>>a>>b;

swapp(a,b);

cout<<"After swapping a and b : "<<a<<" "<<b;

return 0;

}

void swapp(int &a,int &b)

{

int temp;

temp=a;

a=b;

b=temp;

}

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

Sol – 7.

#include<iostream>

using namespace std;

inline int swapp(int a,int b,int c=0);

int main()

{

int a,b,c;

cout<<"Enter two numbers : ";

cin>>a>>b;

cout<<"Sum : "<<swapp(a,b);

cout<<endl<<"Enter three numbers : ";

cin>>a>>b>>c;

cout<<"Sum : "<<swapp(a,b,c);

return 0;

}

int swapp(int a,int b,int c)

{

return a+b+c;

}

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

Triangle

Sol – 8.

#include<iostream>

using namespace std;

inline float area(float);

inline int area(int,int);

inline float area(float,float);

int main()

{

int r,l,b;

float bs,h;

cout<<"Enter the radius of circle : ";

cin>>r;

cout<<"Area of Circle : "<<area(r)<<endl;

cout<<"Enter the length and breadth of rectangle : ";

cin>>l>>b;

cout<<"Area of Rectangle : "<<area(l,b)<<endl;

cout<<"Enter the base and height of trianle should in points: ";

cin>>bs>>h;

cout<<"Area of Triangle : "<<area(bs,h)<<endl;

return 0;

}

float area(float r)

{

return 3.14\*r;

}

int area(int l, int b)

{

return l\*b;

}

float area(float b, float h)

{

return 0.5\*b\*h;

}

9. Write functions using function overloading to find a maximum of two numbers and

both the numbers can be integer or real.

Sol – 9.

#include<iostream>

using namespace std;

int greater\_no(int ,int);

int greater\_no(float,float);

int main()

{

int a,b;

float p,q;

cout<<"Enter two numbers : ";

cin>>a>>b;

if(greater\_no(a,b)==1)

cout<<a<<" is greater";

else

cout<<b<<" is greater";

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

cin>>p>>q;

if(greater\_no(p,q)==1)

cout<<p<<" is greater";

else

cout<<q<<" is greater";

return 0;

}

int greater\_no(int a,int b)

{

if(a>b)

return 1;

else

return 0;

}

int greater\_no(float a,float b)

{

if(a>b)

return 1;

else

return 0;

}

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

types.

Sol – 10.

#include<iostream>

using namespace std;

//without using function overloading

float add(float,float);

int main()

{

float a,b;

cout<<"Enter two numbers : ";

cin>>a>>b;

cout<<"Add : "<<add(a,b);

return 0;

}

float add(float a,float b)

{

return a+b;

}