LABTASK-WEEK-4

ALI ZIA KHAN

FESE-19052

Task1: write a program in C++ that can calculate the factorial of a number by passing the address of that number to a function,using pointers.

```
#include<iostream>
using namespace std;

int factorial( int *pt1){

   int fact=1;
   for(int i=1;i<=*pt1;i++){

    fact=fact*i;
   }
    return fact;

}



int main(){
  int a;
  int *pt1;
  cout<<"Enter no please to claculate factorial"<<endl;
  cin>>a;
  pt1=&a;
  cout<<"The factorial of : " <<*pt1<<" != "<<factorial(&a)<<endl;
}
```

OUTPUT:

```
C:\Users\ALI ZIA\Desktop\ARW pdfs\oop labtasks\factorialwithpointer.exe
Enter no please to claculate factorial
5
The factorial of : 5 != 120

--------------------------------
Process exited after 2.113 seconds with return value 0
Press any key to continue . . .
```

Task2: Write down a C++ program that will declare and initialize two arrays and would generate the sum of these two arrays by using pointers.

```
#include<iostream>
#include<conio.h>
using namespace std;

void sum(int *p1,int *p2){
    int c[5];
    int *result;
    result=c;

    for(int i=0;i<5;i++){

        *result=*p1 + *p2;
    cout<<"num1["<<i<<"]="<<*p1<<"+"<<"num2["<<i<<"]="<<*p2<<"\t and result is"<<*result<<endl;
        p1++;
        p2++;
    }
}
int main(){

    int num1[5]={23,45,62,21,30};
    int num2[5]={2,5,4,7,8};
    int *p1,*p2;
    //p1 and p2 will not take argument from num1 and num2 until we give control of them to pointers
    p1=num1;
    p2=num2;
    cout<<"The ouput is:\t"<<endl;
    sum(num1,num2);

    _getch();
    return 0;

}
```

OUTPUT:

```
The ouput is:
num1[0]=23+num2[0]=2     and result is25
num1[1]=45+num2[1]=5     and result is50
num1[2]=62+num2[2]=4     and result is66
num1[3]=21+num2[3]=7     and result is28
num1[4]=30+num2[4]=8     and result is38
```

Task3: Write down a C++ program ,that will Calculate the area of a Circle by using Constant Data member PI=3.14, and by using Constant Pointer.

```
#include<iostream>
#include<conio.h>
#include<string.h>
#include<cmath>
using namespace std;
double CalcArea(const double *const pt1){

    return (M_PI)*  (*pt1) * (*pt1);
};
int main()

    double value=5.3;
    const double *const pt1=&value;
    cout<<"The Area if circle is\t "<<CalcArea(&value)<<"meter sq."<<endl;

}
```

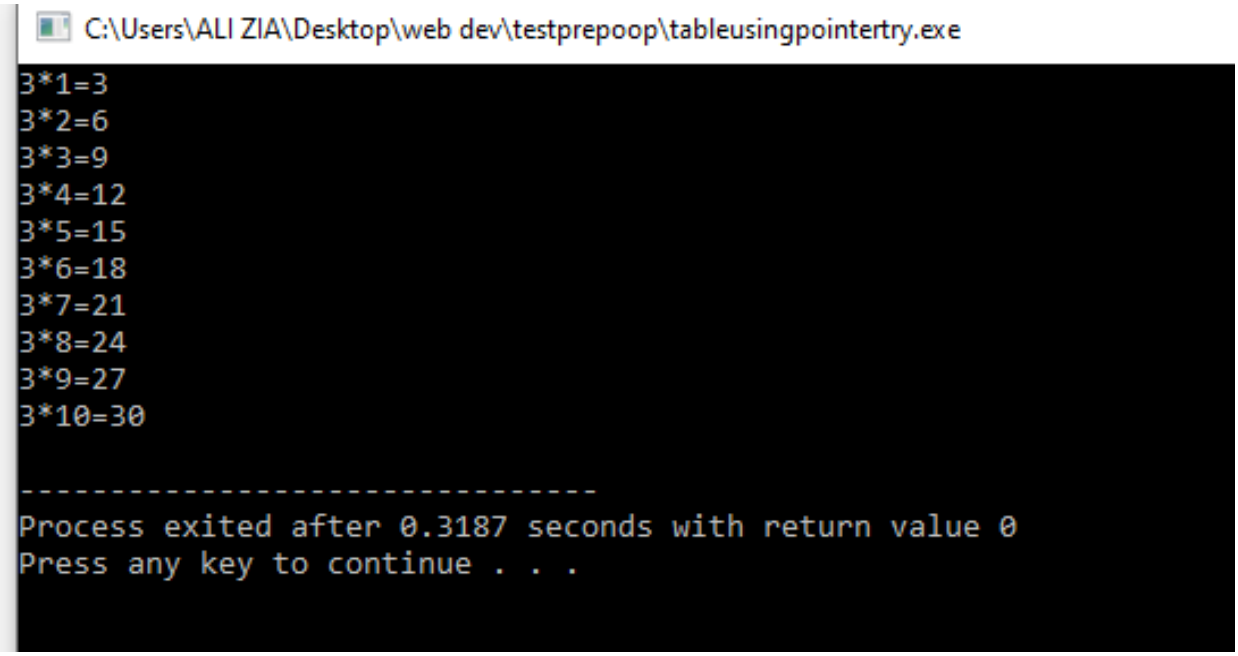
OUTPUT:

```
The Area if circle is    88.2473meter sq.

--------------------------------
Process exited after 0.3224 seconds with return value 0
Press any key to continue . . .
```

Task4: Write down a C++ program that would generate some table 2*1=2,2*10=20by using pointers.

```
#include<iostream>
#include<conio.h>
#include<string.h>
#include<cmath>
using namespace std;
int table(int *ptr1){
    for(int i=1;i<=10;i++){

     cout<<*ptr1<<"*"<<i<<"="<<*ptr1 *  i <<endl;

    }


}
int main(){
    int no=3;
    int *ptr1;
    ptr1=&no;

    table(&no);

}
```

OUTPUT:



Task5: Write down a C++ program that would design a simple Calculator , by using Pointers.

```
#include<iostream>
#include<conio.h>
using namespace std;
int addition(int *pt1,int *pt2){
    int a=(*pt1)+(*pt2);
    return a;

}
int subtraction(int *pt1,int *pt2){

    int s=*pt1-*pt2;
    return s;

}
int multiplication(int *pt1,int *pt2){

    int m=*pt1 * *pt2;
    return m;

}
int division(int *pt1,int *pt2){

    int d=*pt1 / *pt2;
    return d;

}
```

```
int main(){

    int *pt1;
    int *pt2;
    int num1,num2;
    cout<<"Enter first number please"<<endl;
    cin>>num1;
    cout<<"Enter second number please"<<endl;
    cin>>num2;
    pt1=&num1;
    pt2=&num2;


    cout<<"The sum of the given numbers is:\t"<<addition(&num1,&num2)<<endl;
        cout<<"The product of numbers is:\t"<<multiplication(&num1,&num2)<<endl;
            cout<<"The result after subtraction is:\t"<<subtraction(&num1,&num2)<<endl;
                cout<<"The result after division is:\t"<<division(&num1,&num2)<<endl;

    _getch();
    return 0;


}
```

OUTPUT: