Home Work No.1

PF (FALL-2022)

7th September 2022

Content:

1) Practice Codes
2) Includes some challenge questions
3) At the end some exercise questions

Run following programs in separate .cpp files and carefully study and understand it.

Remember you must practice these codes before coming in the next class, which will be tomorrow (08-09-2022).

//…………………………………………………..1.cpp……………………………………………………….

```cpp
#include <iostream>

using namespace std;


int main()
{
        int var1;  //Variable to store first input

        int var2; //Variable to store second input

        int sum=0; //Variable to store calculated sum and initialized it with zero


        cout<<"\nEnter First Value  : ";

        cin>>var1;

        cout<<"\nEnter Second Value  : ";

        cin>>var2;


        sum = var1 + var2; //Expression to calculate sum
```

```cpp
        cout<<"\nSum  =  "<<sum;


        cout<<"\n\nProgram Ends Here\n";
}
```

//…………………………………………………………1a.cpp……………………………………..

```cpp
/* Another way of writing program 1.cpp*/


#include <iostream>
using namespace std;


int main()
{


        int var1, var2;  //Variables to store inputs
        int sum = 0; //Variable to store calculated sum initialize it with zero


        cout<<"\nEnter two inputs  : ";
        cin>>var1>>var2;



        sum = var1 + var2; //Expression to calculate sum
        cout<<"\nSum  =  "<<sum;


        cout<<"\n\nProgram Ends Here\n";



}
```

```cpp
//……………………………………………… 2.cpp……………………………………………………
/* Carefully see what following program is doing.
You should understand what and how \r, \a, \n and \t are operating */
#include <iostream>
using namespace std;

int main() {

        cout << "\aHello \r tell\a"<<endl;
        return 0;

}
```

```cpp
……………………………………………… 3.cpp…………………………………………………
* Carefully see what following program is doing.
You should understand what and how & operator, sizeof() operator and \' are operating */

#include <iostream>
using namespace std;

int main()
{

        int a;
        short x;
        a = 10;
        x = 15;
        cout << "\nValue of Variable \'a\' \t "<<a;
        cout << "\nAdress of Variable \'a\' \t " << &a;
```

```
        cout << "\nSize of Variable \'a\' \t " << sizeof(a);

        cout << "\nValue of Variable \'x\' \t " << &x;

        cout << "\nSize of Variable \'x\' \t  " << sizeof(x);

        cout<<endl;


        return 0;


}
```

Challenge question 1: Run the following program and explain what this program is doing?

………………………………………………………… 3a.cpp……………………………………………………………

```
#include <iostream>

using namespace std;

int main()

{

        int var1=100;

        long a = 100;

        cout << "\nExplain what is printing here???? \t  " << sizeof(var1);

        cout << "\nExplain what is printing here???? \t  " << &var1;

        cout << "\nExplain what is printing here???? \t  " << sizeof(&var1);

        cout << "\nExplain what is printing here???? \t  " << sizeof(a);

        cout << "\nExplain what is printing here???? \t  " << &a;

        cout << "\nExplain what is printing here???? \t  " << sizeof(&a);

        cout<<endl;

        return 0;

}
```

/*Run the following program (4.cpp and 4a.cpp) understand them carefully and explain what this program is doing?*/

//Both 4.cpp and 4a.cpp are very important to understand

………………………………………………………… 4.cpp……………………………………………………………

```cpp
#include <iostream>

using namespace std;

int main()

{

        cout << "Size of integer Literal  : "<<sizeof(5)<<endl;

        cout << "Size of Character Literal  : "<<sizeof('5')<<endl;

        cout << "Size of first string Literal  : "<<sizeof("5")<<endl;

        cout << "Size of second string Literal  : "<<sizeof("55") << endl;

        return 0;

}
```

………………………………………………………… 4a.cpp……………………………………………………………

```cpp
#include <iostream>

using namespace std;

int main ()

{

        int a=10;

        short b=10;

        long c=10;

        float d=10.0;

        double e=10.0;

        long double f=10.0;

        bool g=true;

        cout<<"value of Integer a is  "<<a<<"  size is : "<<sizeof(a)<<endl;

        cout<<"value of short c is  "<<b<<"  size is : "<<sizeof(b)<<endl;
```

```cpp
    cout<<"value of long c is  "<<c<<"  size is : "<<sizeof(c)<<endl;
    cout<<"size of integer Literal is 10 and its size is : "<<sizeof(10)<<endl;
    cout<<"value of Float d is  "<<d<<"  size is : "<<sizeof(d)<<endl;
    cout<<"value of double e is  "<<e<<"  size is : "<<sizeof(e)<<endl;
    cout<<"value of long double f is  "<<f<<"  size is : "<<sizeof(f)<<endl;
    cout<<"size of Float Literal is 10.0 and its size is : "<<sizeof(10.0)<<endl;
    cout<<"value of boolean g is  "<<g<<"  size is : "<<sizeof(g)<<endl;
    cout<<"size of boolean literal \"true\"   is : "<<sizeof(true)<<endl;
    cout<<"size of literal character \'A\' is : "<<sizeof('A')<<endl;
    cout<<"size of string literal  \"A\" is  is : "<<sizeof("A")<<endl;
    return 0;
}
```

Exercise questions:

Hint: Use appropriate type of variables. Print output in a Nice and understandable way.

1. Write a C++ program that takes four integer values as input, calculates their average and prints out result.
2. Write a program that will compute the total sales tax on a particular purchase. Assume the state sales tax is 4 percent and the county sales tax is 2 percent.
3. A company generates 62 percent of total sales. Based on that percentage, write a program that will predict how much it will generate if the company has 4.6 million in sales this year.
4. Run the following program and find what errors compiler shows. Correct those errors and run program.

```
#include iostream
using namespace std;


int main();
{
        int a, b, c\\ Three integers
        a = 3
        b = 4
        c = a + b
        Cout < "The value of c is :  < C;
        return 0;
{
```