

DATA STRUCTURES LABORATORY MANUAL – ICE 2144

III SEMESTER B. TECH

EXPT. 0 INTRODUCTION TO CODE BLOCKS

1. Write a C++ program to display the following:
Enjoy yourself with C++!

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

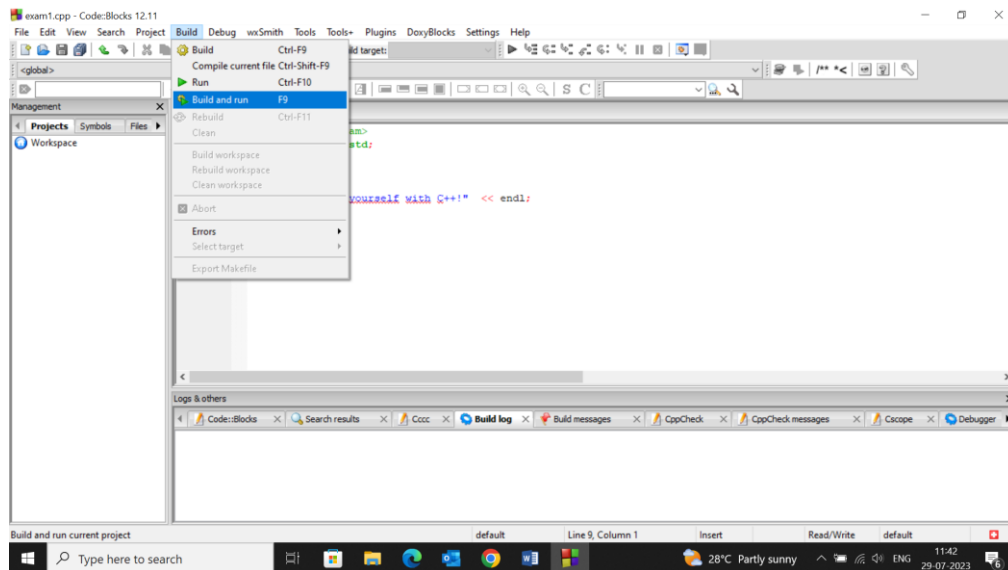
int main()
{
    cout << "Enjoy yourself with C++!" << endl;
    return 0;
}
```

Step 1: Open 'CodeBlocks'

Step 2: Select File → New → Empty file.

Step 3: After typing the code, save the file as .cpp file.

Step 4: Once saved, 'Build and Run' or F9.

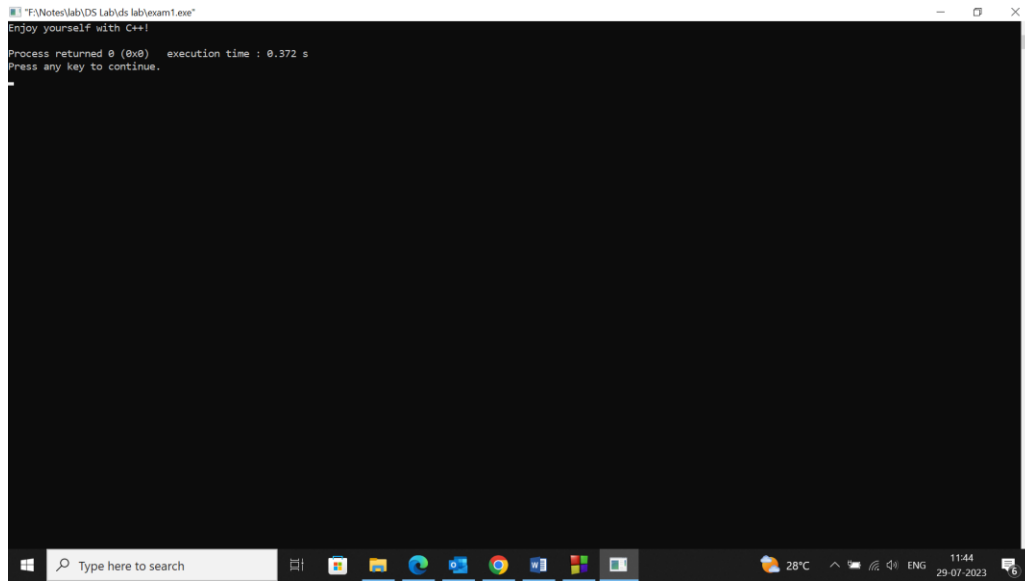


Step 5:

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Step 6: Press any key to complete the execution.

2. Write a C++ program to display the following:
Hello! The program starts in main().

In function message().

At the end of main().

```
#include <iostream>
using namespace std;
void line(), message();           // Prototypes

int main()
{
    cout << "Hello! The program starts in main()." << endl;
    line();
    message();
    line();
    cout << "At the end of main()." << endl;
    return 0;
}

void line()                       // To draw a line.
{
    cout << "-----" << endl;
}

void message()                   // To display a message.
{
```

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```
cout << "In function message()." << endl;
}
```

3. Write a C++ program to convert a given 2D cartesian coordinates (x,y) to its equivalent polar coordinate representation (R, Phi). [Note: Angle values should be displayed in degrees]

```
#include <iostream>
#include <cstdlib>
#include <cmath> // For trigonometric functions
using namespace std;

int main()
{
    float t, x, y, R, a, A;
    cout<<"Enter the X-coordinate value: X = ";
    cin>>x;
    cout<<"Enter the Y-coordinate value: Y = ";
    cin>>y;
    t=x*x+y*y;
    R=sqrt(t);
    a=atan2(y,x);
    A= a*180/(M_PI);
    cout<<"The equivalent Polar Coordinates are: R = "<<R<<" and Angle (in
    deg.) = "<<A;
    return 0;
}
```

4. Write a C++ program to check whether a given integer (positive/negative) is ODD or EVEN.

```
#include <iostream>
#include <cstdlib>
// used for data type conversion, pseudo-random number generation, memory
//.. allocation, searching, sorting, mathematics and dealing with wide or multibyte
characters
using namespace std;

int main()
{
    int a, r;
    cout<<"Enter any Positive/Negative integer: ";
    cin>>a;
    r = abs(a)%2;
    if (r==0)
    {
        cout<<"The given integer "<<a<<" is EVEN. \n";
    }
}
```

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```
}  
else  
{  
    cout<<"The given integer "<<a<<" is ODD. \n";  
}  
return 0;  
}
```

5. Write a C++ program to display the following image:

