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Lab Task # 3

Task#1: Write a program that generates the following output using 1 variable:

5

20

30

25

Declare a variable, initialize the initial value, use arithmetic operator to generate 20 and so on........

Note : only one variable is allowed in your code.

```
#include<iostream>

using namespace std;

void main() {

        int a = 5;

        cout << a << endl;

        a = a * 4;

        cout << a << endl;

        a = a + 10;

        cout << a << endl;

        a = a - 5;
```
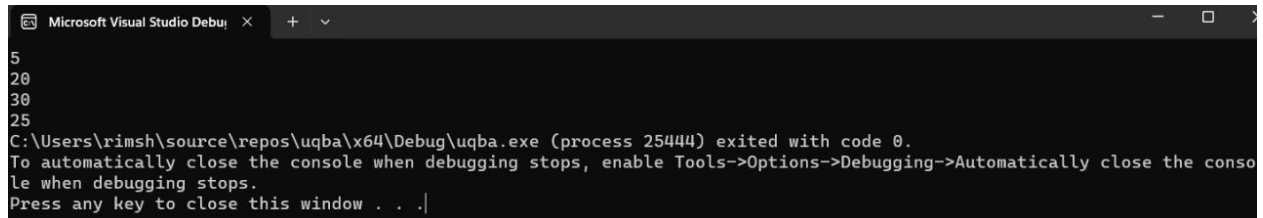
```
        cout << a;

}
```

Output:

Task#2: Write a C++ code which take two inputs from user, your program should display the AND of both the

values

Sample Output:

Enter 1st value = 1

Enter 2nd value = 0

AND of 1 and 0 = 0

```cpp
#include<iostream>

using namespace std;

void main() {

        int a, b;

        cout << "Enter 1st value" << endl;

        cin >> a;

        cout << "Enter 2nd value" << endl;

        cin >> b;

        cout << "AND of " << a << " and " << b << " = " << (a && b);
```

}

Output:

Task#3: Write a program that prints the truth table of OR Gate. Use relational and logical operators for the result

of the truth table. In OR gate, the output will be 1 if at least 1 input is non-zero.

Sample Output:

A B X

0 0 0

0 1 1

1 0 1

1 1 1

#include<iostream>

using namespace std;

void main() {

    int a, b, r;

    a = 0, b = 0;

    cout << a << " " << b << " " << (a || b) << endl;

    b = 1;

    cout << a << " " << b << " " << (a || b) << endl;

    a = 1;

```
        b = 0;

        cout << a << " " << b << " " << (a || b) << endl;

        b = 1;

        cout << a << " " << b << " " << (a || b) << endl;

}
```

Output:

```
Microsoft Visual Studio Debug    ×    +    ∨                                                    —    □    ×
0 0 0
0 1 1
1 0 1
1 1 1

C:\Users\rimsh\source\repos\Project1\x64\Debug\Project1.exe (process 28664) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .|
```

Task#4: If the marks obtained by a student in five different subjects are input through the keyboard, find out the total obtained marks and percentage obtained by the student. Assume that the maximum marks that can be

obtained by a student in each subject is 100.

```
#include<iostream>

using namespace std;

void main() {

        int S1, S2, S3, S4, S5, sum;

        float percentage;

        cout << "Enter marks of 1st subject" << endl;

        cin >> S1;

        cout << "Enter marks of 2nd subject" << endl;

        cin >> S2;

        cout << "Enter marks 0f 3rd subject" << endl;
```

cin >> S3;

cout << "Enter marks of 4th subject" << endl;

cin >> S4;

cout << "Enter marks of 5th subject" << endl;

cin >> S5;

sum = S1 + S2 + S3 + S4 + S5;

cout << "obtained marks= " << sum << endl;

percentage = (sum * 100) / 500;

cout << "percentage " << percentage;

}

Output:

```
Enter marks of 1st subject
30
Enter marks of 2nd subject
40
Enter marks 0f 3rd subject
50
Enter marks of 4th subject
60
Enter marks of 5th subject
70
obtained marks= 250
percentage 50
C:\Users\rimsh\source\repos\uqba\x64\Debug\uqba.exe (process 10660) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```

Task#5: Temperature of a city in Fahrenheit degrees is input through the keyboard. Write a program to convert

this temperature into Centigrade degrees.

C = (F-32) /1.8

#include<iostream>

using namespace std;

void main() {

```
int temp;

float centi;

cout << "Enter your city temperature in Fahrenheit" << endl;

cin >> temp;

centi = (temp - 32) / 1.8;

cout << "Temperature in Centigrade is " << centi;
}
```
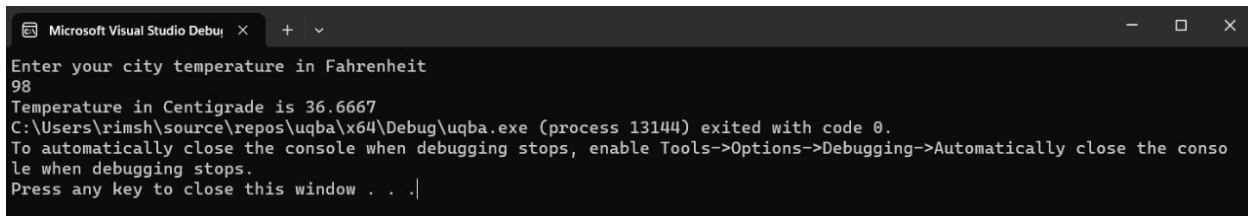
Output:

Task#6: Create a program which solve the following mathematical equation:

−b + b

2 − 4ac

2a

Where a,b,c, will be entered by user, your program should calculate the result

```
#include<iostream>

using namespace std;

void main() {

    int a, b, c, result;

    cout << "Enter 1st value" << endl;
```

```
        cin >> a;

        cout << "Enter 2nd value" << endl;

        cin >> b;

        cout << "Enter 3rd value" << endl;

        cin >> c;

        result = (-b + (b * b) - (4 * a * c)) / (2 * a);

        cout << "result= " << result;

}
```
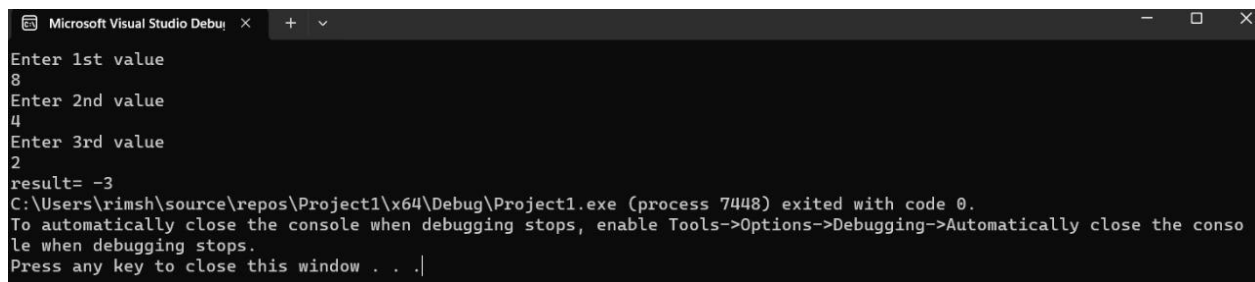
Output:

Task#7: If a four-digit number is input through the keyboard, write a program to calculate the sum of its digits.

(Hint: Use the modulus operator '%' and division '/')

Sample output:

enter a 4 digit single number: 5431

Sum of all digits of the number is 13

NOTE : Your input is a single number not 4 different inputs

```
#include<iostream>

using namespace std;

void main() {

        int num, x, sum = 0;
```

```cpp
cout << "enter a four digit number" << endl;

cin >> num;

x = num / 1000;

num = num % 1000;

sum = sum + x;

x = num / 100;

num = num % 100;

sum = sum + x;

x = num / 10;

num = num % 10;

sum = sum + x;

x = num;

sum = sum + x;

cout <<"sum of four digit number= " <<sum<< endl;
}
```
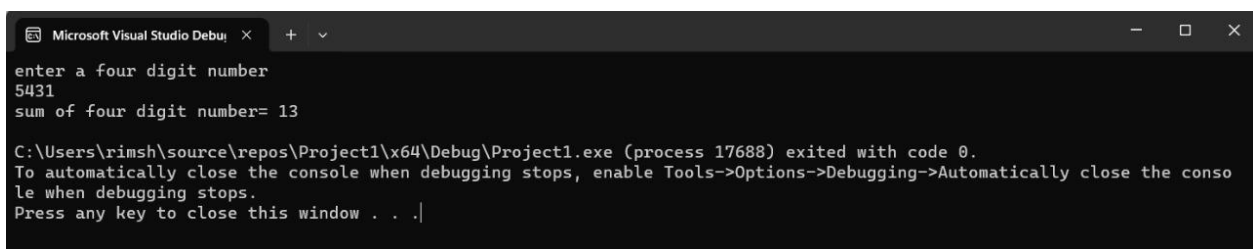
Output:

```
enter a four digit number
5431
sum of four digit number= 13

C:\Users\rimsh\source\repos\Project1\x64\Debug\Project1.exe (process 17688) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```