LAB TASKS 05

Question#01) Write a C++ program to check whether a character is alphabet or not.

Source Code

```cpp
#include <iostream>
using namespace std;
int main() {
    char ch;
    cout << "Enter a character: ";
    cin >> ch;
    if ((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z')) {
        cout << ch << " is an alphabet." << endl;
    } else {
        cout << ch << " is not an alphabet." << endl;
    }
    return 0;
}
```

Output

```
Enter a character: &
& is not an alphabet.

--------------------------------
Process exited after 86.73 seconds with return value 0
Press any key to continue . . .
```

Question #02) Write a C++ program to input angles of a triangle and check whether triangle is valid or not.

Source Code

```cpp
#include <iostream>
using namespace std;
int main() {
    int angle1, angle2, angle3;
    cout << "Enter three angles of a triangle: ";
    cin >> angle1 >> angle2 >> angle3;
    if (angle1 + angle2 + angle3 == 180) {
        cout << "Triangle is valid." << endl;
    } else {
        cout << "Triangle is not valid." << endl;
    }
    return 0;
}
```

Output

```
Enter three angles of a triangle: 60
30
90
Triangle is valid.

--------------------------------
Process exited after 11.24 seconds with return value 0
Press any key to continue . . .
```

Question #03) Write a C++ program to check whether a character is vowel or consonant.

Source Code

```cpp
#include <iostream>
using namespace std;
int main() {
    char ch;
    cout << "Enter a character: ";
    cin >> ch;
    if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u' ||
        ch == 'A' || ch == 'E' || ch == 'I' || ch == 'O' || ch == 'U') {
        cout << ch << " is a vowel." << endl;
    } else {
        cout << ch << " is a consonant." << endl;
    }
    return 0;
}
```

Output

```
Enter a character: i
i is a vowel.

--------------------------------
Process exited after 3.746 seconds with return value 0
Press any key to continue . . .
```

Question #04) Write a menu driven C++ program for simple calculator using if-else.

Source Code

```cpp
#include <iostream>
using namespace std;
int main() {
    char operation;
    double num1, num2;
    cout << "Enter operator (+, -, *, /): ";
    cin >> operation;
    cout << "Enter two numbers: ";
    cin >> num1 >> num2;
    if (operation == '+') {
        cout << "Result: " << num1 + num2 << endl;
    } else if (operation == '-') {
        cout << "Result: " << num1 - num2 << endl;
    } else if (operation == '*') {
        cout << "Result: " << num1 * num2 << endl;
    } else if (operation == '/') {
        if (num2 != 0) {
            cout << "Result: " << num1 / num2 << endl;
        } else {
            cout << "Division by zero is not allowed." << endl;
        }
    } else {
        cout << "Invalid operator!" << endl;
    }
    return 0;
}
```

Output

```
Enter operator (+, -, *, /): *
Enter two numbers: 3
97
Result: 291

--------------------------------
Process exited after 11.22 seconds with return value 0
Press any key to continue . . .
```

Question #05) Write a program to input three numbers and find maximum between all.

Source Code

```cpp
#include <iostream>
using namespace std;
int main() {
    int num1, num2, num3;
    cout << "Enter three numbers: ";
    cin >> num1 >> num2 >> num3;
    if (num1 >= num2 && num1 >= num3) {
        cout << "Maximum number is: " << num1 << endl;
    } else if (num2 >= num1 && num2 >= num3) {
        cout << "Maximum number is: " << num2 << endl;
    } else {
        cout << "Maximum number is: " << num3 << endl;
    }
    return 0;
}
```

Output

```
Enter three numbers: 36
40
38
Maximum number is: 40

--------------------------------
Process exited after 7.519 seconds with return value 0
Press any key to continue . . .
```

Question #06) Write a C++ program that tells the user that the number entered is less than, greater than or equal to 10?

Source Code

```cpp
#include <iostream>
using namespace std;
int main() {
    int num;
    cout << "Enter a number: ";
    cin >> num;
    if (num < 10) {
        cout << "The number is less than 10." << endl;
    } else if (num > 10) {
        cout << "The number is greater than 10." << endl;
    } else {
        cout << "The number is equal to 10." << endl;
    }
    return 0;
}
```

Output

```
Enter a number: 10
The number is equal to 10.

--------------------------------
Process exited after 1.914 seconds with return value 0
Press any key to continue . . .
```

Question #07) Write a C++ program that tells the user that the number entered is even or odd?

Source Code

```cpp
#include <iostream>
using namespace std;
int main() {
    int num;
    cout << "Enter a number: ";
    cin >> num;
    if (num % 2 == 0) {
        cout << num << " is even." << endl;
    } else {
        cout << num << " is odd." << endl;
    }
    return 0;
}
```

Output

```
Enter a number: 20
20 is even.

--------------------------------
Process exited after 2.406 seconds with return value 0
Press any key to continue . . .
```

Question #08) Write a menu driven C++ program that ask the user to choose the type in which he wants the output? Either he wants to convert the entered Celsius temperature in to Fahrenheit or Kelvin?

Source Code

```cpp
#include <iostream>
using namespace std;
int main() {
    int choice;
    double celsius, fahrenheit, kelvin;
    cout << "Choose conversion type:\n1. Celsius to Fahrenheit\n2. Celsius to Kelvin\n";
    cin >> choice;
    cout << "Enter temperature in Celsius: ";
    cin >> celsius;
    if (choice == 1) {
        fahrenheit = (celsius * 9/5) + 32;
        cout << "Temperature in Fahrenheit: " << fahrenheit << endl;
    } else if (choice == 2) {
        kelvin = celsius + 273.15;
        cout << "Temperature in Kelvin: " << kelvin << endl;
    } else {
        cout << "Invalid choice!" << endl;
    }
    return 0;
}
```

Output

```
Choose conversion type:
1. Celsius to Fahrenheit
2. Celsius to Kelvin
2
Enter temperature in Celsius: 45
Temperature in Kelvin: 318.15

--------------------------------
Process exited after 10.53 seconds with return value 0
Press any key to continue . . .
```

Question #09) According to your grading system mark the user entered percentage as Grade A, B, C, D, F?

Percentage >=90 A grade
Percentage >=80 B grade
Percentage >=70 C grade
Percentage >=60 D grade
Percentage >=40 E grade
Percentage <40 F grade

Source Code

```cpp
#include <iostream>
using namespace std;
int main() {
    double percentage;
    cout << "Enter percentage: ";
    cin >> percentage;
    if (percentage >= 90) {
        cout << "Grade: A" << endl;
    } else if (percentage >= 80) {
        cout << "Grade: B" << endl;
    } else if (percentage >= 70) {
        cout << "Grade: C" << endl;
    } else if (percentage >= 60) {
        cout << "Grade: D" << endl;
    } else if (percentage >= 40) {
        cout << "Grade: E" << endl;
    } else {
        cout << "Grade: F" << endl;
    }
    return 0;
}
```

Output

```
Enter percentage: 89
Grade: B

--------------------------------
Process exited after 3.151 seconds with return value 0
Press any key to continue . . .
```