C++ Assignment

Home Task 1:

main.cpp Run Output Clear

```cpp
#include <iostream>
#include <cmath>

using namespace std;

double distanceBetweenTwoPoints(double x1, double y1, double x2
    , double y2) {
    return sqrt(pow(x2 - x1, 2) + pow(y2 - y1, 2));
}

int main() {
    double x1 = 25;
    double x2 = 20;
    double y1 = 15;
    double y2 = 10;

    double distance = distanceBetweenTwoPoints(x1, y1, x2, y2);

    cout << "The distance between the two points is
        approximately " << distance << " units." << endl;
```

```
/tmp/t6D9nUTD7L.o
The distance between the two points is approximately 7.07107 units.
```

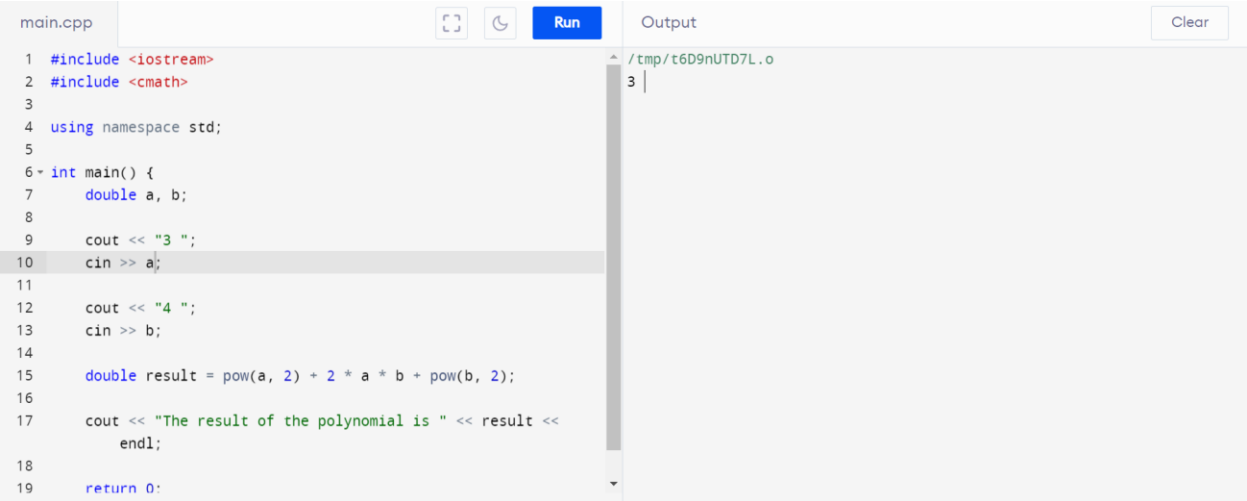
Home Task 2:

main.cpp Run Output Clear

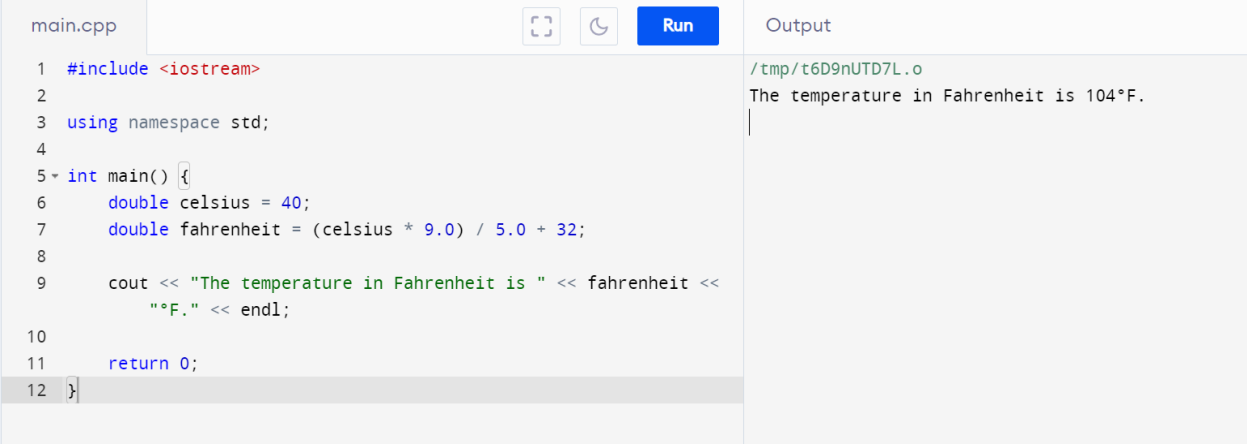
```cpp
#include <iostream>

using namespace std;

int main() {
    float centimeter = 1000;
    float meter = centimeter / 100.0;
    float kilometer = centimeter / 100000.0;

    cout << "Length in meters: " << meter << endl;
    cout << "Length in kilometers: " << kilometer << endl;

    return 0;
}
```

```
/tmp/t6D9nUTD7L.o
Length in meters: 10
Length in kilometers: 0.01
```

Home Task 3:



Home Task 4:



Lab Task 1 (From Lab Manual 2):

main.cpp Run Output Clear

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

int main() {
    int age = 19;
    bool is_eligible = age >= 18;
    if (is_eligible) {
        cout << "You are eligible to vote." << endl;
    } else {
        cout << "You are not eligible to vote." << endl;
    }
    return 0;
}
```

```
/tmp/t6D9nUTD7L.o
You are eligible to vote.
```

Lab task 2:

main.cpp Run Output Clear

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

int main() {
    int num = 55;
    bool is_in_range = num >= 10 && num <= 50;
    if (is_in_range) {
        cout << "The number " << num << " falls within the range
            [10, 50]." << endl;
    } else {
        cout << "The number " << num << " does not fall within
            the range [10, 50]." << endl;
    }
    return 0;
}
```

```
/tmp/t6D9nUTD7L.o
The number 55 does not fall within the range [10, 50].
```

Lab Task 3:

main.cpp Run Output Clear

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

int main() {
    int num1 = 18;
    int num2 = 21;
    int max_num = num1 > num2 ? num1 : num2;
    cout << "The maximum of " << num1 << " and " << num2 << " is
        " << max_num << "." << endl;
    return 0;
}
```

```
/tmp/t6D9nUTD7L.o
The maximum of 18 and 21 is 21.
```

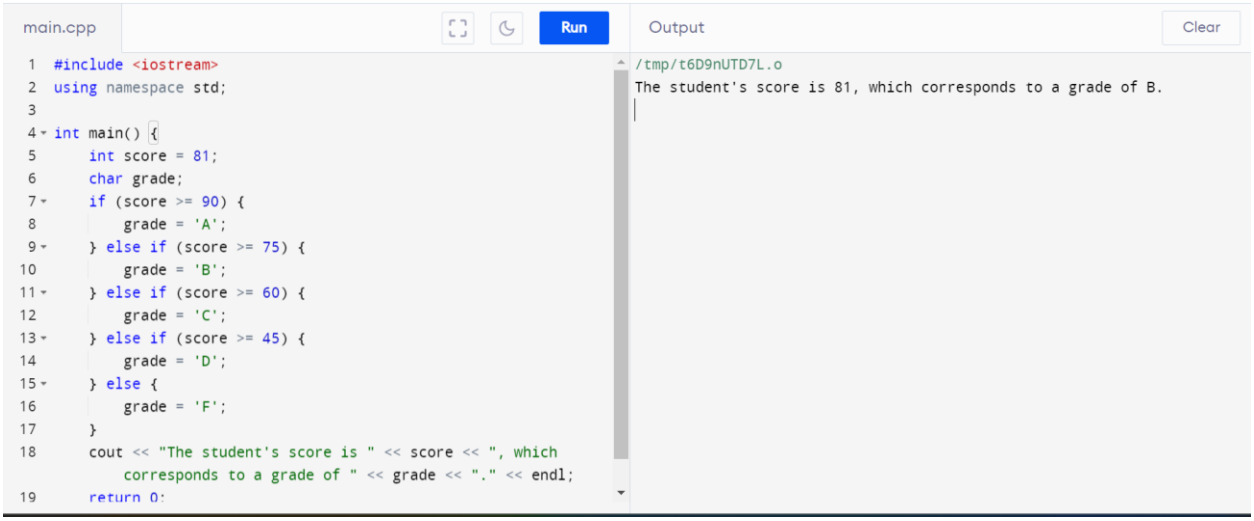
Lab Task 4:

main.cpp Run Output Clear

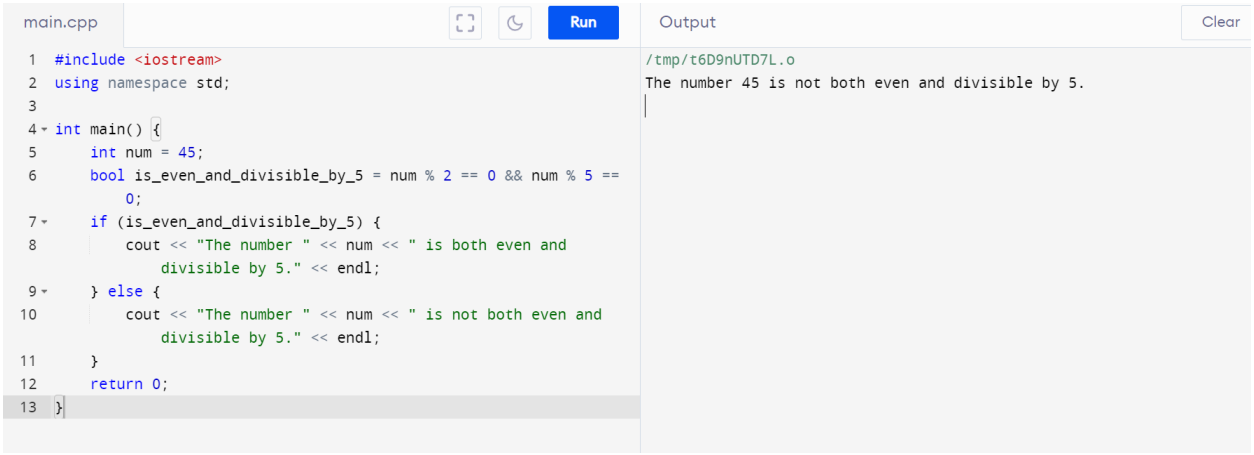
```cpp
#include <iostream>
using namespace std;

int main() {
    int score1 = 75;
    int score2 = 67;
    int score3 = 51;
    double average = (score1 + score2 + score3) / 3.0;
    bool is_passing = average >= 60.0;
    if (is_passing) {
        cout << "Congratulations! Your average score of " <<
            average << " is above the passing grade." << endl;
    } else {
        cout << "Sorry, your average score of " << average << "
            is below the passing grade." << endl;
    }
    return 0;
}
```

```
/tmp/t6D9nUTD7L.o
Congratulations! Your average score of 64.3333 is above the passing
    grade.
```

Home Task 1 (from Lab Manual 2):



Home Task 2:



Home Task 3:

main.cpp Run Output Clear

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

int main() {
    int year = 2019;
    bool is_leap_year = (year % 4 == 0 && year % 100 != 0) ||
        (year % 400 == 0);
    if (is_leap_year) {
        cout << year << " is a leap year." << endl;
    } else {
        cout << year << " is not a leap year." << endl;
    }
    return 0;
}
```

```
/tmp/t6D9nUTD7L.o
2019 is not a leap year.
```

Home Task 4:

main.cpp Run Output Clear

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

int main() {
    double gpa = 3.6;
    double attendance = 64.0;
    bool is_eligible = gpa >= 3.5 && attendance >= 80.0;
    if (is_eligible) {
        cout << "Congratulations! You are eligible for a
            scholarship." << endl;
    } else {
        cout << "Sorry, you are not eligible for a scholarship."
            << endl;
    }
    return 0;
}
```

```
/tmp/t6D9nUTD7L.o
Sorry, you are not eligible for a scholarship.
```

Home Task 5:

main.cpp Run Output Clear

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

int main() {
    char c = 's';
    bool is_vowel = c == 'a' || c == 'e' || c == 'i' || c == 'o'
        || c == 'u' || c == 'A' || c == 'E' || c == 'I' || c ==
        'O' || c == 'U';
    if (is_vowel) {
        cout << "The character " << c << " is a vowel." << endl;
    } else {
        cout << "The character " << c << " is a consonant." <<
            endl;
    }
    return 0;
}
```

```
/tmp/t6D9nUTD7L.o
The character s is a consonant.
```