Activity No. 2.2

Hands-on Activity 2.2: Control Structures

Course Code: CPE 007	**Program:** Computer Engineering
Course Title: Programming Logic and Design	**Date Performed: 9/08/2025**
Section: CPE11S1	**Date Submitted: 11/08/2025**
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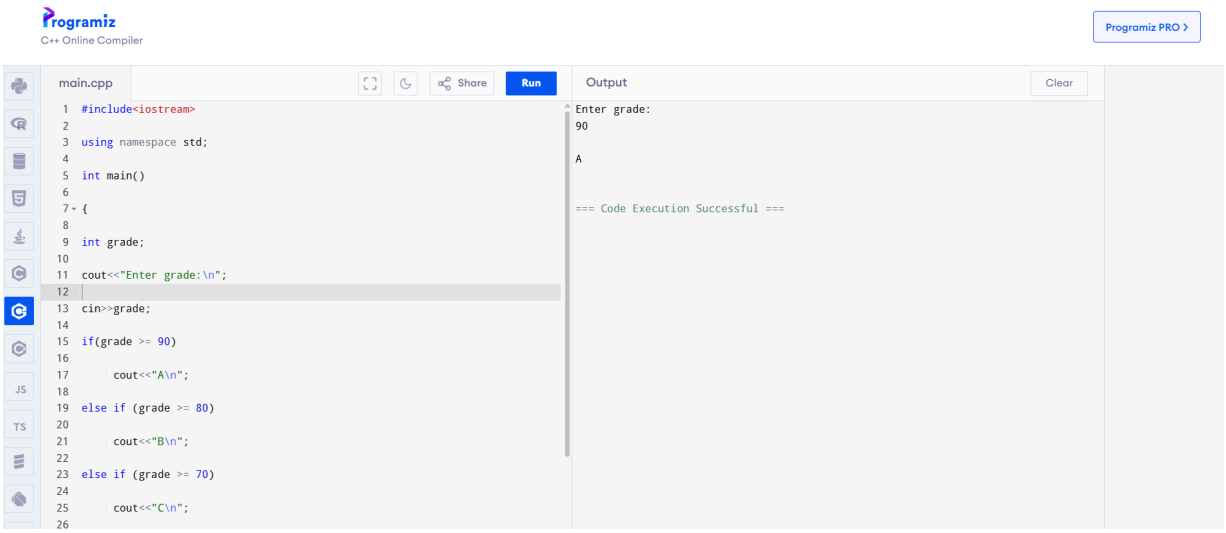
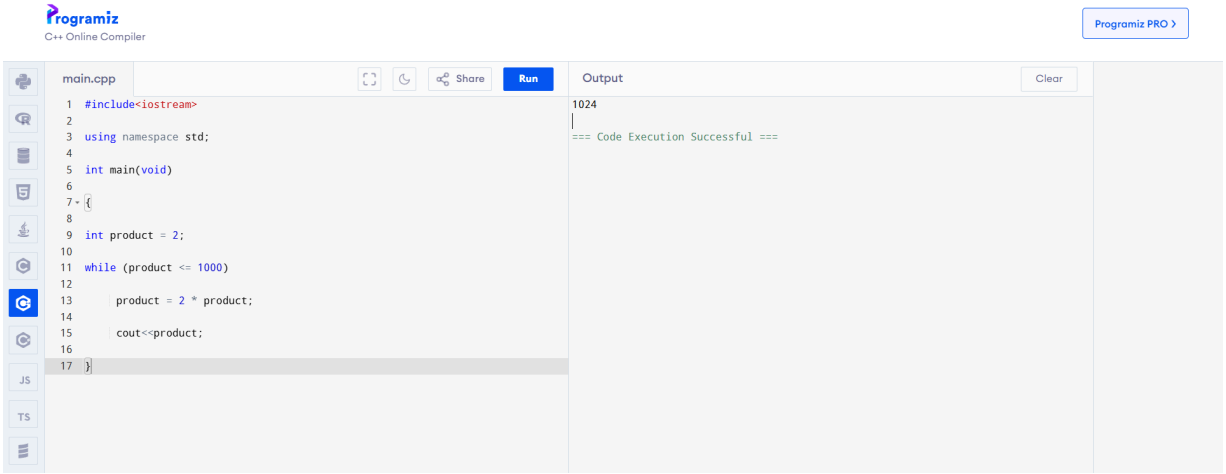
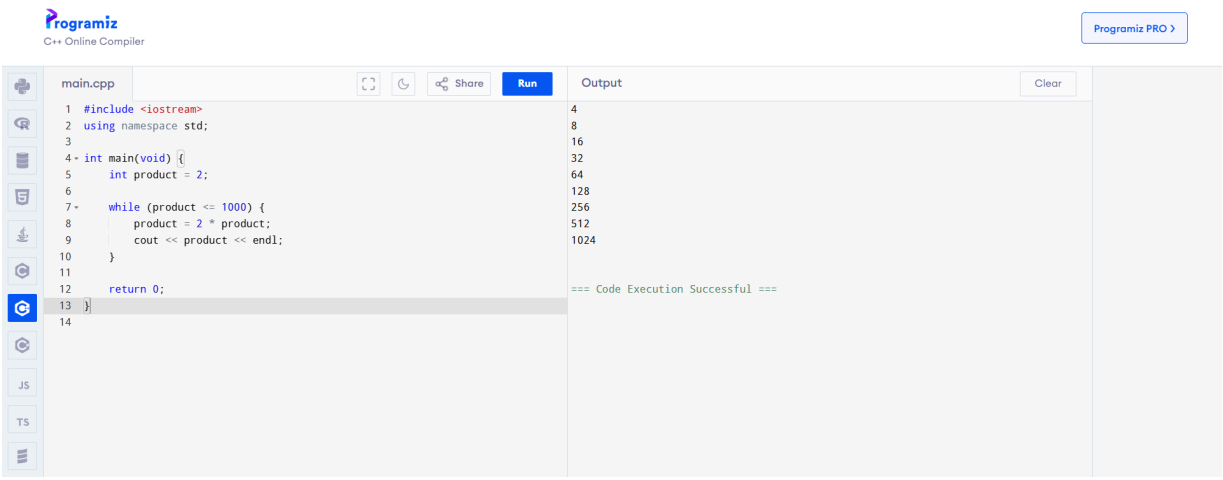
6. Output







7. Supplementary Activity

Exercise 1: Counter- Controlled Repetition. A class of ten students took a quiz. The grades (integers in the range of 0 to 100) for this quiz are available to you. Determine the class average on the quiz. Put your answer in the output section of the activity template. Ensure that the screen shot of the code and the output are readable.

Using the following pseudocode the program can be as follows:

Set total to zero

Set grade counter to one

While grade counter is less than or equal to ten

Input the next grade

Add the grade into the total

Add one to the grade counter

Set the class average to the total divided by ten

Print the class average

main.cpp

Share | Run | Output | Clear

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

int main() {
    int total = 0;
    int grade;
    int gradeCounter = 1;

    while (gradeCounter <= 10) {
        cout << "Enter grade " << gradeCounter << ": ";
        cin >> grade;
        total += grade;
        gradeCounter++;
    }

    double average = static_cast<double>(total) / 10;

    cout << "Class average is: " << average << endl;

    return 0;
}
```

```
Enter grade 1: 77
Enter grade 2: 78
Enter grade 3: 79
Enter grade 4: 80
Enter grade 5: 78
Enter grade 6: 89
Enter grade 7: 80
Enter grade 8: 90
Enter grade 9: 89
Enter grade 10: 78
Class average is: 81.8


=== Code Execution Successful ===
```

1. **Using conditional statements (if-else statements), write a program that asks a user for a number and prints out if it is an even or an odd number.**

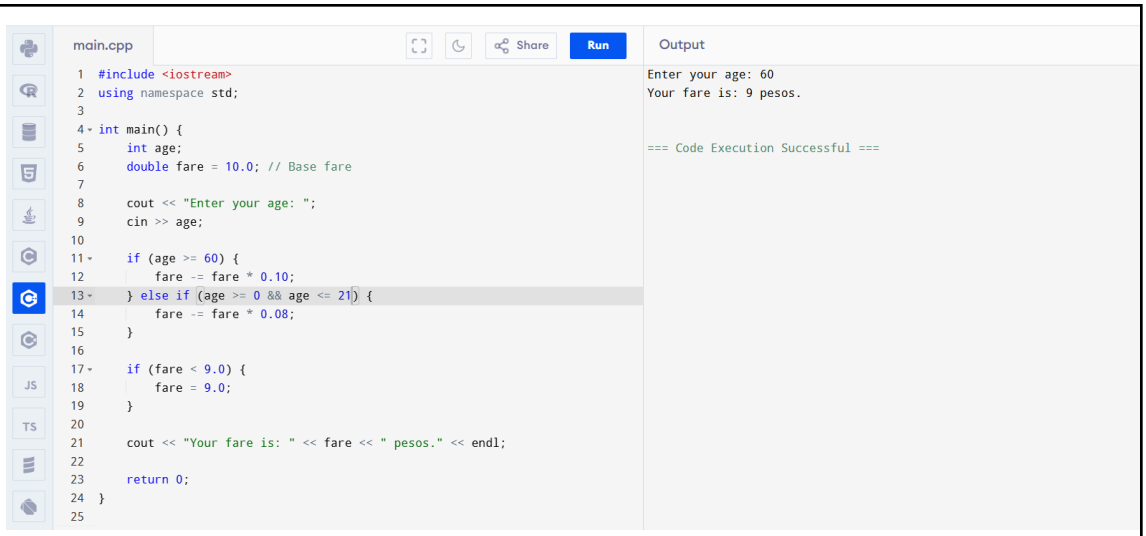
main.cpp

Share | Run | Output

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

int main() {
    int number;

    cout << "Enter a number: ";
    cin >> number;

    if (number % 2 == 0) {
        cout << "The number " << number << " is even." << endl;
    } else {
        cout << "The number " << number << " is odd." << endl;
    }

    return 0;
}
```

```
Enter a number: 6
The number 6 is even.


=== Code Execution Successful ===
```

2. **Using conditional statements, write a program that computes for 10 percent fare discount of a senior citizen and 8 percent fare discount of a student. There will be no discount if not a senior citizen and not a student. The user will be asked to enter age. The minimum fare is 9 pesos.**



3. **Case Study: Sentinel Controlled Repetition. Given the following pseudocode, create a program that will implement a sentinel controlled repetition. For example, you can use (-1) as the sentinel value. You can use Problem 1 as your reference.**

Pseudocode:

Initialize total to zero

Initialize counter to zero

Input the first grade

While the user has not as yet entered the sentinel

Add this grade into the running total

Add one to the grade counter

Input the next grade (possibly the sentinel)

If the counter is not equal to zero

Set the average to the total divided by the counter

Print the average

else

Print "No grades were entered"

/*Class average program with counter-controlled repetition */

```
#include<iostream>
using namespace std;
int main()
{
	int counter, grade, total, average;
	/* initialization phase */
	total = 0;
	counter = 1;

	/* processing phase */
	while (counter <=10){
	cout<<"Enter the grade: ";
	cin>>grade;
	total = total + grade;
	counter = counter + 1;
	}
	/* termination phase */
	average = total / 10;
	cout<<"Class average is" <<average;

	return 0; /* program ends */
}
```

main.cpp

Share | Run

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

int main() {
    int grade, total = 0, counter = 0;

    cout << "Enter a grade (or -1 to stop): ";
    cin >> grade;

    while (grade != -1) {
        total += grade;
        counter++;

        cout << "Enter the next grade (or -1 to stop): ";
        cin >> grade;
    }

    if (counter != 0) {
        double average = static_cast<double>(total) / counter;
        cout << "The class average is: " << average << endl;
    } else {
        cout << "No grades were entered." << endl;
    }

    return 0;
}
```

Output | Clear

```
Enter a grade (or -1 to stop): 90
Enter the next grade (or -1 to stop): 89
Enter the next grade (or -1 to stop): 77
Enter the next grade (or -1 to stop): 81
Enter the next grade (or -1 to stop): -1
The class average is: 84.25


=== Code Execution Successful ===
```

8. Conclusion

I have learned more about if-else statement, also learned about basic looping and is learning more to adapt about coding and this subject.

9. Assessment Rubric

Rubric for SO 7 (7)

Criteria	Ratings						Pts
SO 7 PI 1 IILO4 Utilize lifelong learning skills in pursuit of personal development and excellence in professional practice. threshold: 4.8 pts	6 pts Excellent | Educational interests and pursuits exist and flourish outside classroom requirements,knowledge and/or experiences are pursued independently and applies knowledge learned into practice	5 pts Good | Educational interests and pursuits exist and flourish outside classroom requirements,knowledge and/or experiences are pursued independently	4 pts Satisfactory | Look beyond classroom requirements, showing interest in pursuing knowledge independently	3 pts Unsatisfactory | Begins to look beyond classroom requirements, showing interest in pursuing knowledge independently	2 pts Poor | Relies on classroom instruction only	1 pts Very Poor | No initiative or interest in acquiring new knowledge	6 pts
SO 7 PI 2 IILO4 Utilize lifelong learning skills in pursuit of personal development and excellence in professional practice. threshold: 4.8 pts	6 pts Excellent | Completes an assigned task independently and practices continuous improvement	5 pts Good | Completes an assigned task without supervision or guidance	4 pts Satisfactory | Requires minimal guidance to complete an assigned task	3 pts Unsatisfactory | Requires detailed or step-by-step instructions to complete a task	2 pts Poor | Shows little interest to complete a task independently	1 pts Very Poor | No interest to complete a task independently	6 pts
SO 7 PI 3 IILO4 Utilize lifelong learning skills in pursuit of personal development and excellence in professional practice. threshold: 4.8 pts	6 pts Excellent | Synthesizes and integrates information from a variety of sources; formulates a clear and precise perspective; draws appropriate conclusions	5 pts Good | Evaluate information from a variety of sources; formulates a clear and precise perspective.	4 pts Satisfactory | Analyze information from a variety of sources; formulates a clear and precise perspective.	3 pts Unsatisfactory | Apply the gathered information to formulate the problem	2 pts Poor | Gather and summarized the information from a variety of sources but failed to formulate the problem	1 pts Very Poor | Gather information from a variety of sources	6 pts
SO 7 PI 4 IILO4 Utilize lifelong learning skills in pursuit of personal development and excellence in professional practice. threshold: 4.8 pts	6 pts Excellent | Ideas are combined in original and creative ways in line with the new and emerging technology trends to solve a problem or address an issue.	5 pts Good | Ideas are creative and adapt the new knowledge to solve a problem or address an issue	4 pts Satisfactory | Ideas are creative in solving a problem, or address an issue	3 pts Unsatisfactory | Shows some creative ways to solve the problem	2 pts Poor | Shows initiative and attempt to develop creative ideas to solve the problem	1 pts Very Poor | Ideas are copied or restated from the sources consulted	6 pts
						Total Points: 24	