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GE 1501 35 Cornerstone 1 of Engineering
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Modern Puzzles

Problem:

Create an algorithm in C++ that allows the user to input six numbers into a program as seed values to generate random numbers that will be tested on six different conditions. The result of the conditions determine the output of six letters ‘A’ through ‘G’ and six different words to form a compliment.

Solution:

Pseudocode is a crucial element to create a functioning and efficient program. I began initializing my variables before prompting the user to enter in six numbers to limit the risk of getting bugs. To generate different random numbers each time the program is running, the user inputs numbers that serve as seed values. Therefore, the random function will return different random numbers each time. The result of the random number generator will run through the conditional statements to determine the letter and word that gets outputted. The output will first show the results of the conditional statements with a letter from ‘A’ through ‘G’. Finally, the program will output the results of the conditional statements with different words to form a coherent and hilarious compliment.

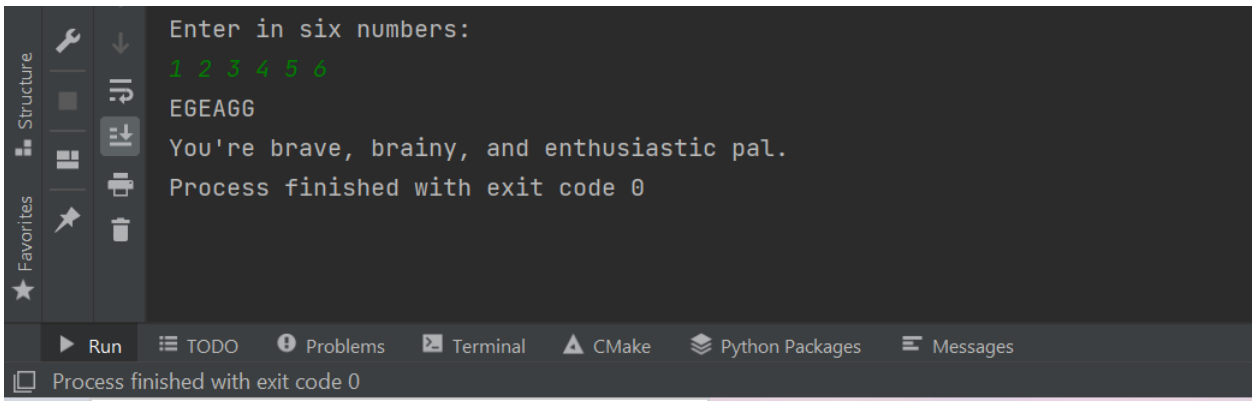
Pseudocode:

- Initialize variables (num1, num2, num3, ...etc) to zero in order for the user input to be accessed.
- Ask the user to input six numbers.
- The entered numbers will be used as seed values for the random number generator by using the cstdlib library.
- The random number generator will pick numbers between the range of 0 to 200 by using the mod operator.
- The results of the random number generator will be tested on six different conditional statements.
- The results from the conditional statements determine the output of letters ‘A’ through ‘G’ six times.
- Six letters will be outputted (CCBGFA)
- The results from the conditional statements determine the output of words amazing, you, brainy, joker, ...etc to form a coherent compliment.
- A complete compliment will be outputted (You amazing, brainy, plus enthusiastic joker,)
- The program will end once the program outputs six letters and a sentence.

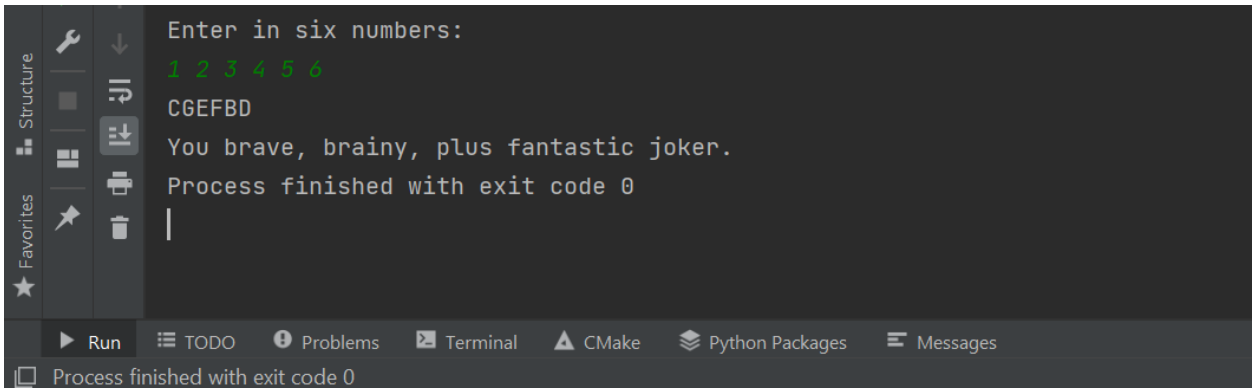
Code Effectiveness:

To test whether the program is functioning correctly, I inputted the same numbers to see if it would output different results. The numbers I entered are 1, 2, 3, 4, 5, and 6 and got different outputs. For the first example, my output results are CGEFBD while the second example's output is EGEAGG. In addition, the compliment is different in both examples. For example one, the compliment is "You brave, brainy, plus fantastic joker." while the second example's compliment is "You're brave, brainy, and enthusiastic pal". This indicates that the random number generator is effective in choosing real random numbers and not the same random number each time the program is run.

Example One:



Example Two:

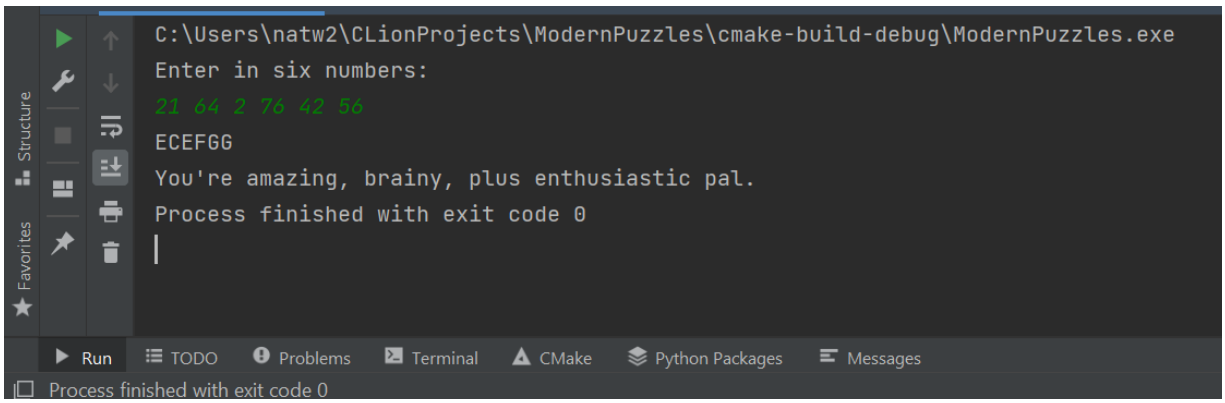


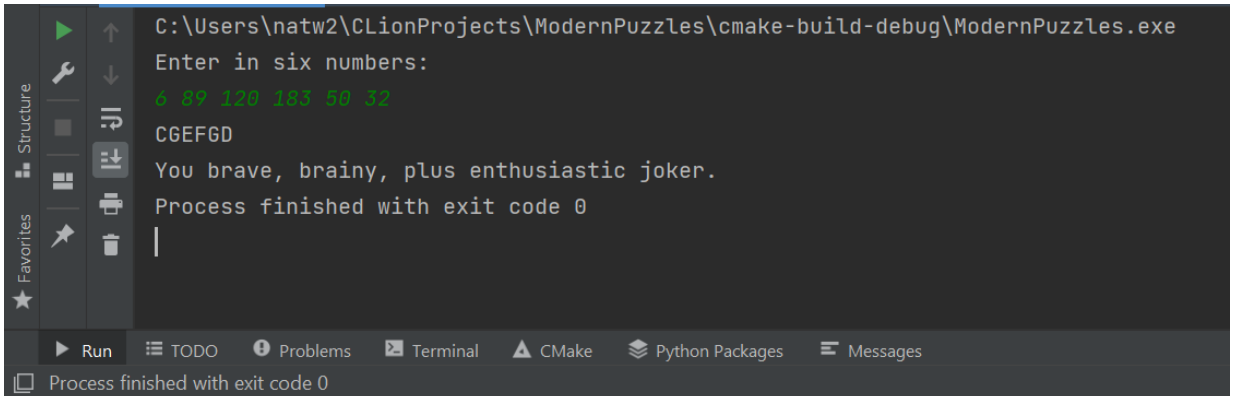
Appendix

```
#include <iostream>
#include <cmath>
#include <cstdlib>
#include <ctime>
#include <string>

using namespace std;

int main() {
   //Letters that will be outputted
   char A = 'A';
   char B = 'B';
   char C = 'C';
   char D = 'D';
   char E = 'E';
   char F = 'F';
   char G = 'G';

   //Strings to hold words for the compliment
   string word1;
   string word2;
   string word3;
   string word4;
   string word5;
   string word6;

   int num1 = 0, num2=0, num3=0, num4=0, num5=0, num6=0;
   srand(time(0));
   cout << "Enter in six numbers:" <<endl;
   //inputted numbers are seed numbers used to generate random numbers between
0-200
   cin >> num1;
   num1 = rand() % 201;

   cin >> num2;
   num2 = rand() % 201;

   cin >> num3;
   num3 = rand() % 201;

   cin >> num4;
   num4 = rand() % 201;

   cin >> num5;
   num5 = rand() % 201;

   cin >> num6;
```

```
num6 = rand() % 201;

//Letter One conditional statement
if ((num1 % 2) == 0) {
    cout << C;
    word1 = "You ";

}
else {
    cout << E;
    word1 = "You're ";
}

//Letter Two conditional statement
if (num2 > num4) {
    cout << G;
    word2 = "brave, ";
}
else if ((num2 % 4) == 0) {
    cout << E;
    word2 = "clever, ";
}
else {
    cout << C;
    word2 = "amazing, ";
}

//Letter Three conditional statement
if (num3 < 34) {
    cout << C;
    word3 = "cheerful, ";
}
else if ((num3 > 33) && (num3 < 67)) {
    cout << B;
    word3 = "adorable, ";
}
else {
    cout << E;
    word3 = "brainy, ";
}

//Letter Four conditional statement
if ((num6 > num1) && (num6 > num2)) {
    cout << A;
    word4 = "and ";
}
else {
    cout << F;
    word4 = "plus ";
```

```
    }

    //Letter Five conditional statement
    if (((num5 + num6) >= (num2 + num4)) || (num4 >= 120)) {
        cout << G;
        word5 = "enthusiastic ";
    }
    else {
        cout << B;
        word5 = "fantastic ";
    }

    //Letter Six conditional statement
    if (num6 < 70) {
        if ((num1 % 2) == 0) {
            cout << C << endl;
            word6 = "angel.";
        }
    }
    else if ((num6 > 69) && (num6 < 141)) {
        cout << D << endl;
        word6 = "joker.";
        }
    else {
        cout  << G << endl;
        word6 = "pal.";
    }

    //outputs compliment
    cout << word1 << word2 << word3 << word4 << word5 << word6;

}
```




C:\Users\natw2\CLionProjects\ModernPuzzles\cmake-build-debug\ModernPuzzles.exe
Enter in six numbers:
6 89 120 183 50 32
CGEFGD
You brave, brainy, plus enthusiastic joker.
Process finished with exit code 0
Structure
Favorites
Run
TODO
Problems
Terminal
CMake
Python Packages
Messages
Process finished with exit code 0