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PROGRAM: BS COMPUTER SCIENCE

ICT_ASSIGNMENT: 04

Q1: The value of pi is computed using following infinite series Pi = 4 – 4/3 + 4/5 – 4/7……

Source Code:

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

int main()
{
    int N, i = 0, j = 1, sign = -1;
    double PI = 4.0, temp = PI;
    cout << "Enter the number of terms you want to calculate PI: ";
    cin >> N;
    while (i != N)
    {
        i++;
        if ((j % 2) != 0)
        {
            temp = 4 - (4 / (static_cast<double>(j)));
            PI += temp * sign;
        }
        sign *= -1;
        j += 2;
    }
    cout << "The value of PI is: " << fixed << setprecision(N) << PI;
}
```

OUTPUT:

```
PS D:\Maqsood's Data\C PROGRAMMING PRACTICE> cd "d:\Maqsood's Data\C PROGRAMMING PRACTICE\P_assignment_04\" ; if
 ($?) { g++ question_1.cpp -o question_1 } ; if ($?) { .\question_1 }
Enter the number of terms you want to calculate PI: 15
The value of PI is: 3.208185652261941
PS D:\Maqsood's Data\C PROGRAMMING PRACTICE\P_assignment_04>
```

Q2: Here is a simple trick that you can use to fool your friends into believing that a computer can read minds. Implement a complete C++ program that meets the following specifications:

i. Tells a user to pick a number from 1 to 999 and then multiply the picked number by 143 to obtain a result in user's mind.
ii. Prompts the user to enter the last three digits of the result from step 1 and reads the user's digits into an integer variable N.
iii. Takes N and multiplies it by 7 to obtain a result.
iv. Displays the last three digits of the result.

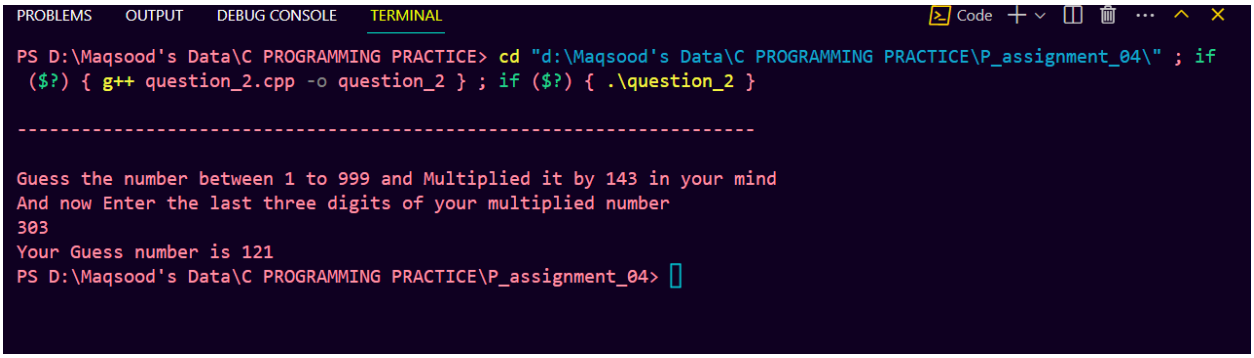
The algorithm works every time! For example: choose 121, 121*143 = 17303, enter 303, 303 *7 = 2121; and displays 121 the correct Answer!

Source Code:

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

int main()
{
    int N, Result, PickedNum;
    cout << "\n-----------------------------------------------------------------------
---\n\nGuess the number between 1 to 999 and Multiplied it by 143 in your
mind\nAnd now Enter the last three digits of your multiplied number\n";
    cin >> N;
    Result = N * 7;
    PickedNum = Result % 1000;
    cout << "Your Guess number is " << PickedNum;
}
```

OUTPUT:


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
Code
PS D:\Maqsood's Data\C PROGRAMMING PRACTICE> cd "d:\Maqsood's Data\C PROGRAMMING PRACTICE\P_assignment_04\" ; if ($?) { g++ question_2.cpp -o question_2 } ; if ($?) { .\question_2 }

Guess the number between 1 to 999 and Multiplied it by 143 in your mind
And now Enter the last three digits of your multiplied number
303
Your Guess number is 121
PS D:\Maqsood's Data\C PROGRAMMING PRACTICE\P_assignment_04>

Q3: Write a program which reads an integer (size of parallelogram) and then prints a parallelogram with edges that are of the entered size. For example, when it reads the number 5, the output would be

```
******

   ******

      ******

         ******

            ******

               ******.
```

Source Code:

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

int main()
{
    int N, space_counter = 0;
    char space = ' ';
    cout << "Enter the size of parallelogram: ";
    cin >> N;
    for (int i = 0; i < 6; i++)
    {
        for (int j = 0; j < N; j++)
        {
            cout << "*";
        }
        cout << endl;
        space_counter++;
        for (int k = 0; k < space_counter; k++)
        {
            cout << space;
```

```
        }
    }
}
```

OUTPUT:

```
PS D:\Maqsood's Data\C PROGRAMMING PRACTICE> cd "d:\Maqsood's Data\C PROGRAMMING PRACTICE\P_assignment_04\" ; if
 ($?) { g++ tempCodeRunnerFile.cpp -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter the size of parallelogram: 5
*****
 *****
  *****
   *****
    *****
     *****

PS D:\Maqsood's Data\C PROGRAMMING PRACTICE\P_assignment_04>
```

THE END