Prolan

A game created to conduct word finding contests

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Abstract

ProLan – Guess the correct Programming Language!

In the game of ProLan, the compiler chooses a question (in the form of a object) at random from a given file and represents the answer using the special character '*'. The user then tries to guess the word, by guessing one letter at a time. Whenever the user guesses a letter that is in the answer, all occurrences of that letter are revealed to the user. The user is also provided with a limited number of lives. For every error one life is deducted. The game ends when the user has guessed every letter in the word, before he reaches the allowed number of strikes.

This project is an interactive game. The program involves the usage of

- Arrays
- Functions (Random and User-defined)
- Strings
- Classes
- File Handling
- Loops (for & while**)**

Coding

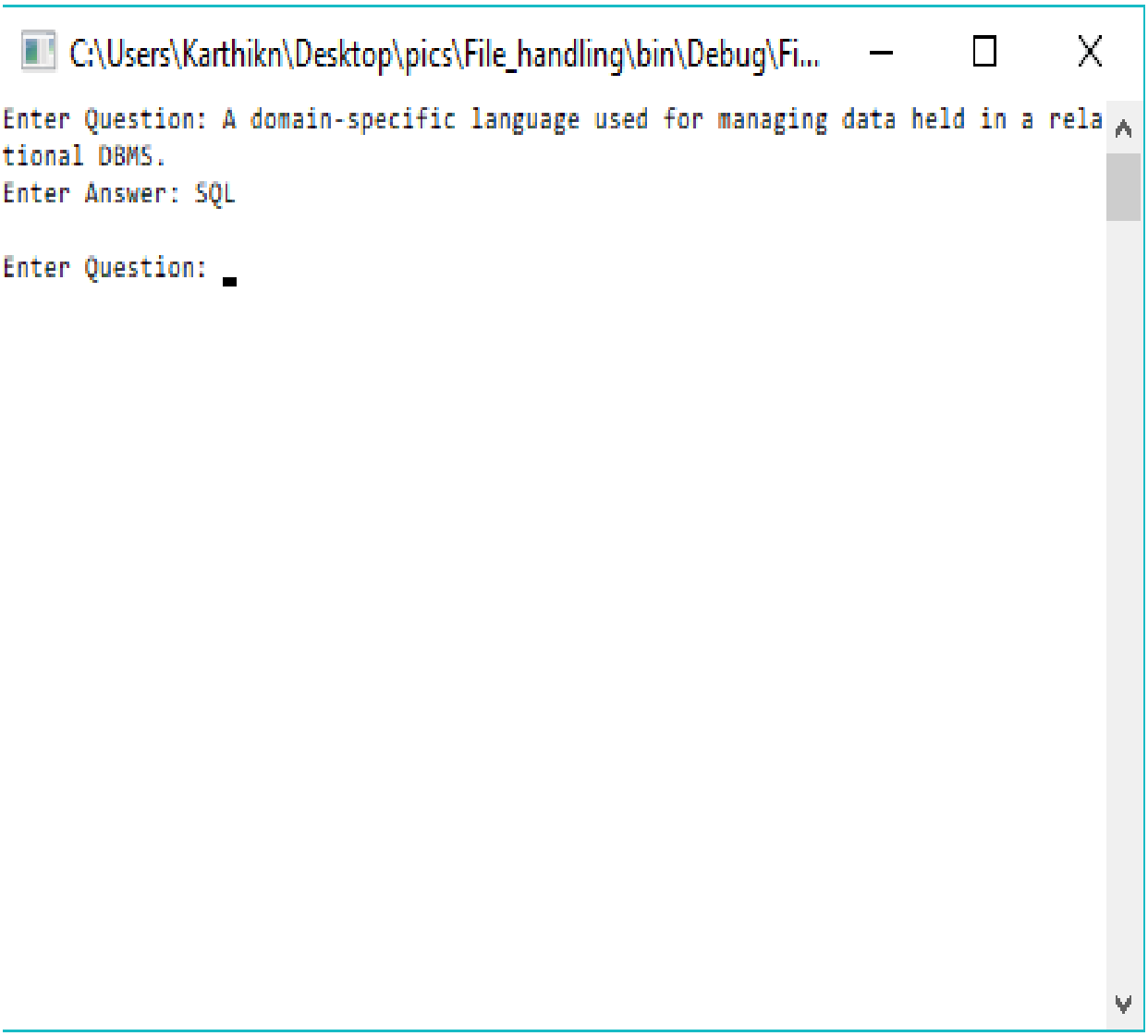
Creating the file Game.dat

```
#include <iostream>
#include<fstream>
using namespace std;
class Game
{
    public:
    char Question[100];
    char Answer[25];

    void Input()
    {
        cout<<"Enter Question: ";
        cin.getline(Question,100);
        cout<<"Enter Answer: ";
        cin.getline(Answer,25);
        cout<<endl;
    }
};

int main()
{
```

```
Game G;
ofstream fout("Game.dat",ios::out|ios::binary);
for(int i=0;i<10;i++)
{
    G.Input();
    fout.write((char*)&G,sizeof(G));
}

fout.close();

cout<<endl<<endl;
cout<<"-----------------------------------------";
cout<<endl<<endl;
cout<<"Q&A in File 'Game.dat' :";
cout<<endl<<endl;

ifstream fin("Game.dat",ios::in|ios::binary);

while(fin)
{
    fin.read((char*)&G,sizeof(G));
    cout<<"Question: "<<G.Question<<endl;
    cout<<"Answer: "<<G.Answer;
    cout<<endl<<endl;

}
```

```
    cout<<endl;
    cout<<"-----------------------------------------";
    cout<<endl<<endl;
    fin.close();
    return 0;

}
```

Output


C:\Users\Karthikn\Desktop\pics\File_handling\bin\Debug\Fi...
Enter Question: A domain-specific language used for managing data held in a rela
tional DBMS.
Enter Answer: SQL
Enter Question:

Program:

```
#include <iostream>
#include <cstdlib>
#include<ctime>
#include <string>
#include<fstream>
using namespace std;

const int MAX_TRIES=5;
int letterFill (char, string, string&);

class Game
{
    public:
    char Question[100];
    char Answer[25];

};
int main ()
{
    system("color F0");
     string name;
     char letter;
     int num_of_wrong_guesses=0;
```

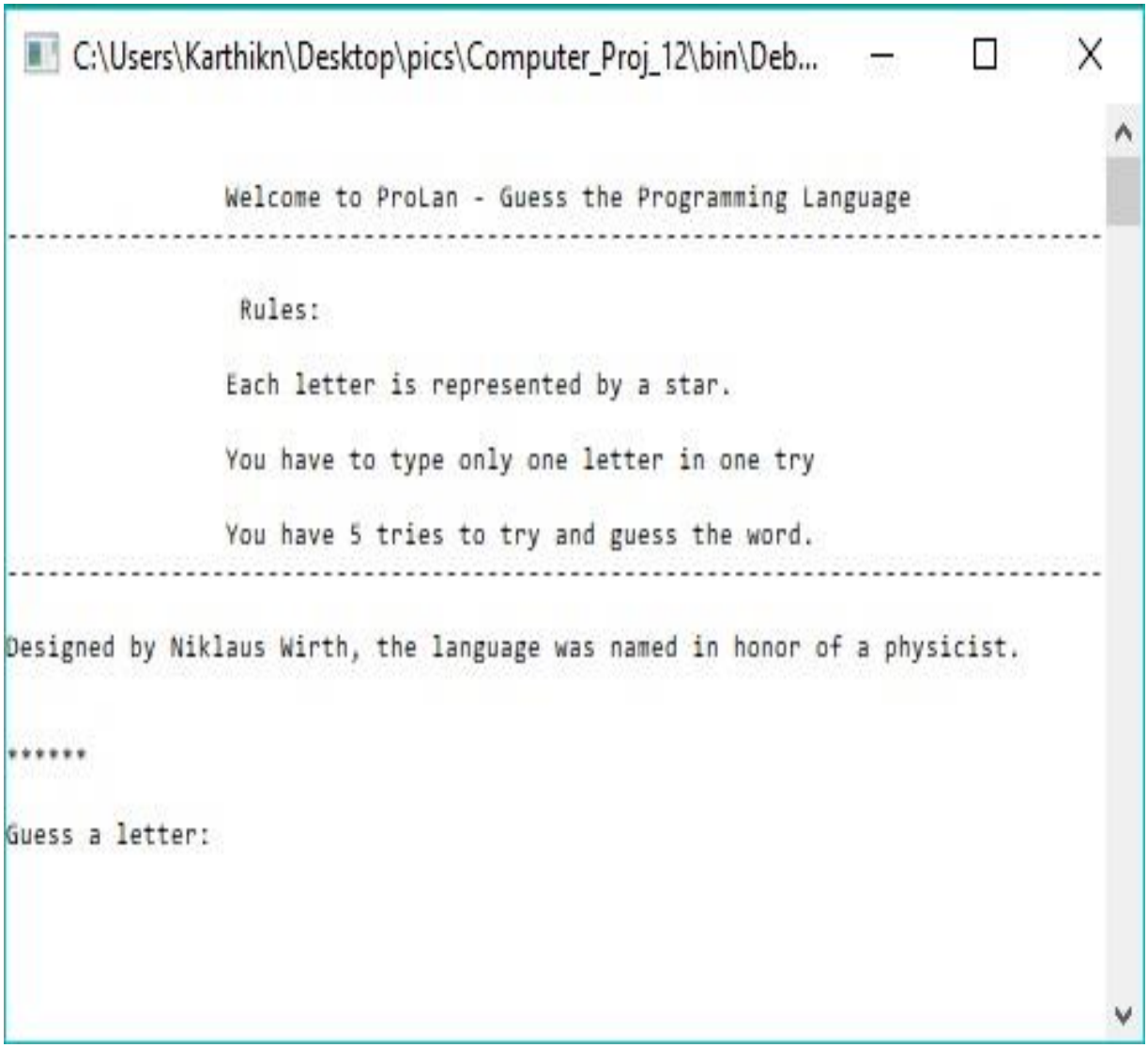
```
     string word;


     srand(time(NULL));
     int n=rand()% 10;


     Game G;
    ifstream fin("Game.dat",ios::in|ios::binary);
    fin.seekg(n*sizeof(G));
    fin.read((char*)&G,sizeof(G));
     word=G.Answer;


     // Initialize the secret word with the * character.
     string unknown(word.length(),'*');


     // welcome the user
     cout << "\n\n\t\tWelcome to ProLan - Guess the Programming
Language";
     cout << "\n-----------------------------------------------
-------------------------------";
     cout << "\n\n\t\t Rules:";
     cout << "\n\n\t\tEach letter is represented by a star.";
     cout << "\n\n\t\tYou have to type only one letter in one
try";
     cout << "\n\n\t\tYou have " << MAX_TRIES << " tries to try
and guess the word.";
     cout << "\n-----------------------------------------------
-------------------------------";
     // Loop until the guesses are used up
```

```
     while (num_of_wrong_guesses < MAX_TRIES)
     {
          cout<<endl<<endl;
          cout<<G.Question;
          cout<<endl;
          cout << "\n\n" << unknown;
          cout << "\n\nGuess a letter: ";
          cin >> letter;
          // Fill secret word with letter if the guess is
correct,
          // otherwise increment the number of wrong guesses.
          if (letterFill(letter, word, unknown)==0)
          {
               cout << endl << "Whoops! That letter isn't in
there!" << endl;
               num_of_wrong_guesses++;
          }
          else
          {
               cout << endl << "You found a letter! Great work!
Keep going!" << endl;
          }
          // Tell user how many guesses has left.
          cout << "You have " << MAX_TRIES -
num_of_wrong_guesses;
          cout << " guesses left." << endl;
          // Check if user guessed the word.
```

```
          if (word==unknown)
          {
              cout <<"----------------------------------------
"<<endl;
            cout<<endl;
               cout << word << endl;
               cout << "That's the right answer!Great
work!"<<endl;
               cout <<"----------------------------------------
-"<<endl;
               break;
          }
     }
     if(num_of_wrong_guesses == MAX_TRIES)
     {
          cout << "\nSorry, you lose...Better luck next time."
<< endl;
          cout << "The word was : " << word << endl;
     }
     cin.ignore();
     cin.get();
     return 0;
}

/* Take a one character guess and the secret word, and fill in
the
 unfinished guessword. Returns number of characters matched.
 Also, returns zero if the character is already guessed. */
```

```
int letterFill (char guess, string secretword, string
&guessword)
{
     int i;
     int matches=0;
     int len=secretword.length();
     for (i = 0; i< len; i++)
     {
          // Did we already match this letter in a previous
guess?
          if (guess == guessword[i])
               return 0;
          // Is the guess in the secret word?
          if (guess == secretword[i])
          {
               guessword[i] = guess;
               matches++;
          }
     }
     return matches;
}
```

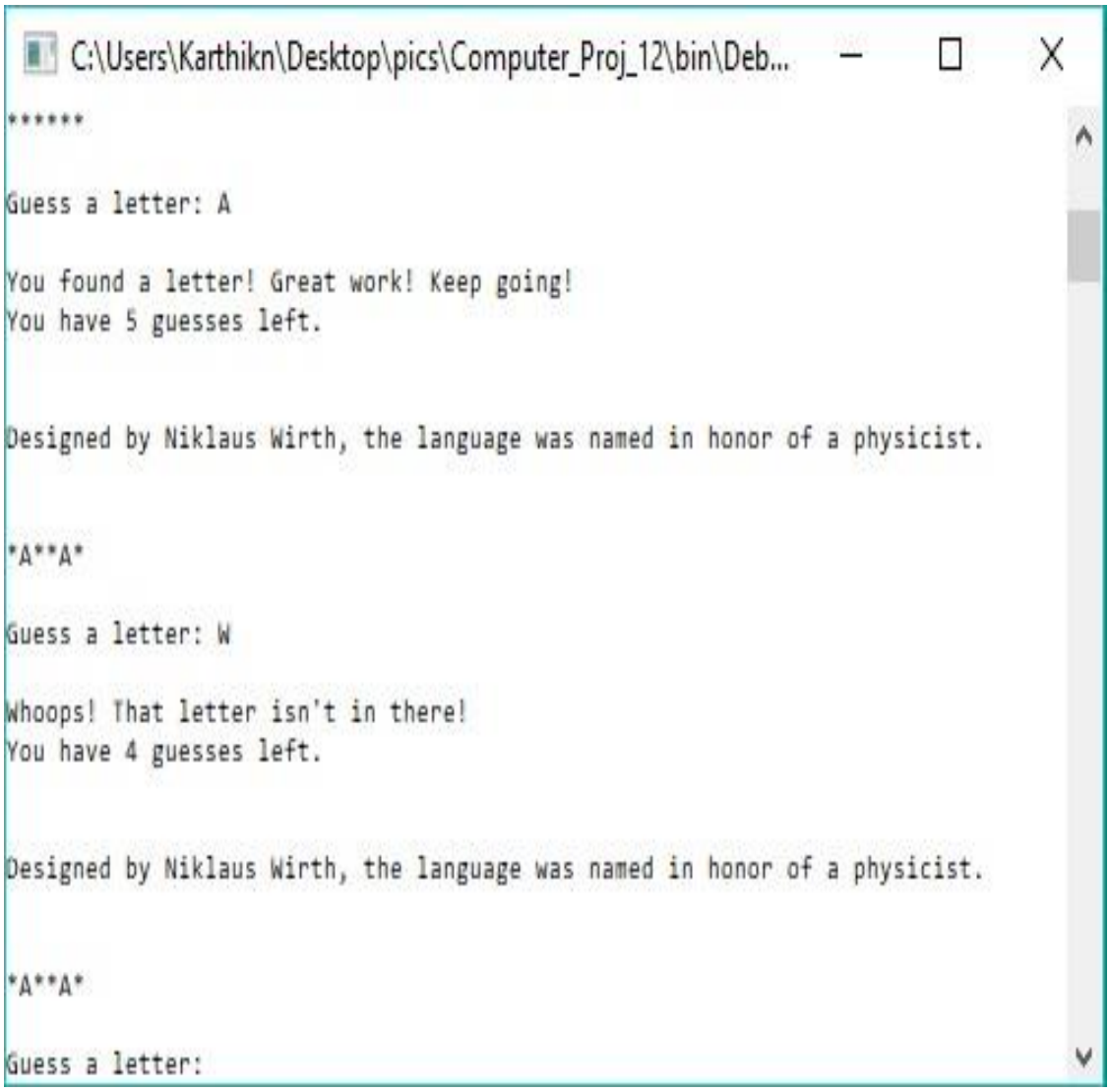
Output


C:\Users\Karthikn\Desktop\pics\Computer_Proj_12\bin\Deb...
Welcome to ProLan - Guess the Programming Language
Rules:
Each letter is represented by a star.
You have to type only one letter in one try
You have 5 tries to try and guess the word.
Designed by Niklaus Wirth, the language was named in honor of a physicist.
******
Guess a letter:

Output


C:\Users\Karthikn\Desktop\pics\Computer_Proj_12\bin\Deb...
Each letter is represented by a star.
You have to type only one letter in one try
You have 5 tries to try and guess the word.
Designed by Niklaus Wirth, the language was named in honor of a physicist.
******
Guess a letter: A
You found a letter! Great work! Keep going!
You have 5 guesses left.
Designed by Niklaus Wirth, the language was named in honor of a physicist.
*A**A*
Guess a letter:

Output


C:\Users\Karthikn\Desktop\pics\Computer_Proj_12\bin\Deb...
******
Guess a letter: A
You found a letter! Great work! Keep going!
You have 5 guesses left.
Designed by Niklaus Wirth, the language was named in honor of a physicist.
*A**A*
Guess a letter: W
Whoops! That letter isn't in there!
You have 4 guesses left.
Designed by Niklaus Wirth, the language was named in honor of a physicist.
*A**A*
Guess a letter:

Output


C:\Users\Karthikn\Desktop\pics\Computer_Proj_12\bin\Deb...
PAS*A*
Guess a letter: C
You found a letter! Great work! Keep going!
You have 4 guesses left.
Designed by Niklaus Wirth, the language was named in honor of a physicist.
PASCA*
Guess a letter: L
You found a letter! Great work! Keep going!
You have 4 guesses left.
PASCAL
That's the right answer!Great work!

Conclusion

Thus, this program helps the student to understand the usage of:

- Arrays;
- Functions;
- Loops;
- Strings;
- Classes and
- File Handling

By building an interactive and interesting game about different programming languages.

Bibliography

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