

CSE1322L Assignment 4

Background:

When you design a piece of software, you often don't consider that the users may not speak the same language you do. Companies who wish to ship their software to different countries will need to "internationalize" their applications. Typically this is done by translating all strings used in the interface to the various languages.

In this lab, you'll be writing a number guessing game. The game will pick a random number between 0 and 100. You'll prompt the user to enter their guess and you'll let them know if they guessed too high, too low, or if they guessed correctly. You'll allow them to keep guessing until they reach the correct answer. The game can be played in English, Spanish, French or Simplified Chinese.

To avoid writing four different versions of this software, you will leverage OOP and Polymorphism to provide the strings from each language. You'll start with a language class. It will have abstract methods for every possible string you may use in your interface. Then you'll create English, Spanish, French and SimplifiedChinese classes which will override the abstract class' methods and return the appropriate string.

Classes you must create:

- Define an abstract Language class
 - It should have 4 abstract methods all of which should return a string:
 - make_guess()
 - too_low()
 - too_high()
 - correct()
- Define a class called English which inherits from Language.
- Define a class called Spanish which inherits from Language.
- Define a class called French which inherits from Language.
- Define a class called SimplifiedChinese which inherits from Language.
 - Each class will need to override all 4 inherited methods and each should return a string as per the table on the next page. Hint: You'll probably want to copy and paste the strings from each language:

Language	make_guess()	too_low()	too_high()	correct()
English	Guess a number	Too Low	Too High	Correct
Spanish	Adivina un numero	Demasiado bajo	Demasiado alto	Correcto
French	Devinez un nombre	Trop bas	Trop haut	Correct
Simplified Chinese	猜一个数字	太低	太高	正确

* All translations above are from google translate.

- Define a class called GuessNumber.
 - It must have a method called play_game()
 - This method will first pick a random number between 0 and 100.
 - In java:
 - Add “import java.util.Random” at the top of this class
 - Random myRand = new Random();
 - myRand.nextInt(100);
 - In C#:
 - Random myRand = new Random();
 - myRand.Next(100);
 - Prompt the user to select a language to play in:
 - Choose your language
 - 1. English
 - 2. Español
 - 3. Français
 - 4. 简体中文
 - If the user selects English, using polymorphism, create a variable of type Language and instantiate an English object on it. If the user selects French, do the same with a variable of type Language with a new French object on it, etc...
 - Using the object you created in the last step, prompt the user to enter their guess. If your object was called myLang, you should be able to just type:
 - print(myLang.make_guess());
 - This will call the make_guess() method in the appropriate language that returns a string, which you can then print.
 - Read in the user’s guess. If it’s too high, too low or correct, give them the appropriate prompt in the appropriate language.

Driver Program:

- In your main method, simply make an instance of GuessNumber and call play_game() on it.

Sample Output:

Choose your language

1. English
2. Español
3. Français
4. 简体中文

1

Guess a number

50

Too High

Guess a number

25

Too Low

Guess a number

33

Too Low

Guess a number

40

Too Low

Guess a number

45

Too Low

Guess a number

48

Too Low

Guess a number

49

Correct

[Separate run]

Choose your language

1. English
2. Español
3. Français
4. 简体中文

4

猜一个数字

50

太低

猜一个数字

75

太低

猜一个数字

85

太高

猜一个数字

80

太高

猜一个数字

77

太高

猜一个数字

76

正确

Submitting your answer:

Please follow the posted submission guidelines here:

<https://ccse.kennesaw.edu/fye/submissionguidelines.php>

Ensure you submit before the deadline listed on the lab schedule for CSE1322L here:

<https://ccse.kennesaw.edu/fye/courseschedules.php>