



CSEN 403: Concepts of Programming Languages

Milestone 1

Team 67

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Predicates We Defined

| Predicate Name | Short Description |
|--|--|
| is_category(C) | Succeeds if C is one of the available categories. |
| categories(L) | Succeeds if L is a list of all the available categories without duplicates. |
| available_length(L) | Succeeds when there exists a word in the KB with length L. |
| pick_word(W, L, C) | Succeeds if there exists a word W in the KB which has length L and in category C. |
| correct_letters(ActualLetters, GuessLetters, CorrectLetters) | Succeeds if CorrectLetters is the common letters between ActualLetters and GuessLetters, without duplicates. |
| correct_positions(ActualLetters, GuessLetters, CorrectPositions) | Succeeds if CorrectPositions contains the letters that appear in both ActualLetters and GuessLetters in the same positions. |
| guess_word(ActualWord, RequiredLength, Guesses) | Asks the user to enter a guess and checks if the guess is equal to ActualWord, if so the user wins. It also checks the guess has the correct RequiredLength. If the user guesses incorrectly or enters a bad input, he can try again. If Guesses reach 0, then the user loses. |
| main | A predicate that is used to start the game, it starts first the KB phase and then the play phase. |
| build_kb | Starts the KB building phase. |
| play | Starts the game play phase. |
| choose_category(C) | Asks the user to enter a category and keeps asking him to enter a category until he enters a correct category which is then bound to C. |

| | |
|---------------------|--|
| choose_length(L, C) | Asks the user to enter a length L and keeps asking him until he provides a correct length of a word that exists in the category C. |
| word(W, C) | Succeeds if there exist a word W in the KB in the category C. |

Predefined Predicates We Used

| Predicate Name | Short Description |
|--------------------------|---|
| write(Message) | Prints a message to the screen |
| read(X) | Asks the user for input |
| var(X) | Succeeds if X is an unbound variable. |
| assert(X) | Adds X into the KB. |
| setof(X, P, B). | Succeeds if B is the list that contains all results of X after executing the predicate P, after removing duplicates and ordering the items. |
| random_member(M, L) | Succeeds if M is a random member of the list L. |
| atom_length(A, L). | Succeeds if L is the length of the atom A. For example the atom apple has length 5. |
| integer(X) | Succeeds if X is an integer. |
| intersection(L1, L2, L3) | Succeeds if L3 contains the common items between L1 and L2. |

| | |
|--------------------------------|--|
| <code>atom_chars(A, C).</code> | Succeeds if C is a list of all characters in the atom A name. |
| <code>list_to_set(L, S)</code> | Succeeds if S is the result of removing duplicates and ordering L ascendingly. |

Screenshots

Winning Case

```
?- main.  
Welcome to Pro-Wordle!  
-----  
Please enter a word and its category on separate lines:  
|: red.  
|: colors.  
Please enter a word and its category on separate lines:  
|: blue.  
|: colors.  
Please enter a word and its category on separate lines:  
|: green.  
|: colors.  
Please enter a word and its category on separate lines:  
|: yellow.  
|: colors.  
Please enter a word and its category on separate lines:  
|: cocacola.  
|: drinks.  
Please enter a word and its category on separate lines:  
|: pepsi.  
|: drinks.  
Please enter a word and its category on separate lines:  
|: coffee.  
|: drinks.  
Please enter a word and its category on separate lines:  
|: water.  
|: drinks.  
Please enter a word and its category on separate lines:  
|: arabic.  
|: languages.  
Please enter a word and its category on separate lines:  
|: english.  
|: languages.  
Please enter a word and its category on separate lines:  
|: done.  
Done building the words database...
```

The available categories are: [colors,drinks,languages]

Choose a category:

|: animals.

This category does not exist.

Choose a category:

|: drinks.

Choose a length:

|: 10.

There are no words of this length.

Choose a length:

|: 5.

Game started. You have 6 guesses.

Enter a word composed of 5 letters:

|: red.

Word is not composed of 5 letters. Try again.

Remaining Guesses are 6

Enter a word composed of 5 letters:

|: yello.

Correct letters are: [e]

Correct letters in correct positions are: []

Remaining Guesses are 5

Enter a word composed of 5 letters:

|: water.

You won!

true .

Losing Case

```
?- main.  
Welcome to Pro-Wordle!  
-----  
Please enter a word and its category on separate lines:  
|: egypt.  
|: countries.  
Please enter a word and its category on separate lines:  
|: sudan.  
|: countries.  
Please enter a word and its category on separate lines:  
|: india.  
|: countries.  
Please enter a word and its category on separate lines:  
|: usa.  
|: countries.  
Please enter a word and its category on separate lines:  
|: france.  
|: countries.  
Please enter a word and its category on separate lines:  
|: restaurant.  
|: place.  
Please enter a word and its category on separate lines:  
|: cinema.  
|: place.  
Please enter a word and its category on separate lines:  
|: doctor.  
|: job.  
Please enter a word and its category on separate lines:  
|: engineer.  
|: job.  
Please enter a word and its category on separate lines:  
|: done.  
Done building the words database...  
The available categories are: [countries,job,place]  
Choose a category:  
|: countries.  
Choose a length:  
|: 5.  
Game started. You have 6 guesses.
```

Enter a word composed of 5 letters:

|: doctor.

Word is not composed of 5 letters. Try again.

Remaining Guesses are 6

Enter a word composed of 5 letters:

|: yemen.

Correct letters are: [n]

Correct letters in correct positions are: [n]

Remaining Guesses are 5

Enter a word composed of 5 letters:

|: egypt.

Correct letters are: []

Correct letters in correct positions are: []

Remaining Guesses are 4

Enter a word composed of 5 letters:

|: qatar.

Correct letters are: [a]

Correct letters in correct positions are: [a]

Remaining Guesses are 3

Enter a word composed of 5 letters:

|: china.

Correct letters are: [n,a]

Correct letters in correct positions are: []

Remaining Guesses are 2

Enter a word composed of 5 letters:

|: spain.

Correct letters are: [s,a,n]

Correct letters in correct positions are: [s,n]

Remaining Guesses are 1

Enter a word composed of 5 letters:

|: india.

You lost!

true .