Work on project. Stage 2/6: Animal facts

Project: Guess the Animal

Animal facts

Hard 1 hour **137** users solved this stage. Latest completion was **1 day ago**.

Description

Now the program should ask for two animals and a fact that can help distinguish one animal from the other. The program should only accept statements of a certain template. Based on the entered statement, the program should print facts about the animals.

Objectives

The program should greet the user and ask them to enter the names of two animals. Then, it should prompt the user to specify a fact about one of the animals that can help distinguish it from the other one. The program should only accept statements of a certain template: "It can/has/is...". In case of incorrect input, the program should show examples of correct statements.

Then, the program needs to find out from the user if the statement is correct for the second animal. Based on that, the program should generate two facts about both animals. In addition, it should also report to the user what question can help it guess the animal correctly. After that, the program should say goodbye to the user.

9 / 9 Prerequisites

- Regexps basics 5
- Regexps in Java 5
- Sets, ranges, alternations 5
- Quantifiers 5
- Shorthands 5

Show all

Join a study group for the project Guess the Animal

Discuss your current project with fellow learners and help each other.

Examples

The greater-than symbol followed by a space `> ` represents the user input. Note that it's not part of the input.

Example 1

```
Hello!

Enter the first animal:
> Cat
Enter the second animal:
> Dog
Specify a fact that distinguishes a cat from a dog.
The sentence should be of the format: 'It can/has/is ...'.

> It can climb trees.
Is it correct for a dog?
> No
I have learned the following facts about animals:
- The cat can climb trees.
- The dog can't climb trees.
I can distinguish these animals by asking the question:
- Can it climb trees?

Thank you and Goodbye!
```

Example 2

```
Good afternoon!

Enter the first animal:
> a unicorn
Enter the second animal:
> horse
Specify a fact that distinguishes a unicorn from a horse.
The sentence should be of the format: 'It can/has/is ...'.

> It has a horn
Is it correct for a horse?
> No
I learned the following facts about animals:
 - The unicorn has a horn.
 - The horse doesn't have a horn
I can distinguish these animals by asking the question:
 - Does it have a horn?

Talk to you later!
```

Example 3

```
Good evening!

Enter the first animal:
> wolf
Enter the second animal:
> hare
Specify a fact that distinguishes a wolf from a hare.
The sentence should be of the format: 'It can/has/is ...'.

> It is a shy animal
Is it correct for a hare?
> Yes
I learned the following facts about animals:
 - The wolf isn't a shy animal
 - The hare is a shy animal.
I can distinguish these animals by asking the question:
 - Is it a shy animal?

See you later!
```

Example 4

```
Good evening!

Enter the first animal:
> cat
Enter the second animal:
> shark
Specify a fact that distinguishes a cat from a shark.
The sentence should be of the format: 'It can/has/is ...'.

> Is it a mammal?
The examples of a statement:
 - It can fly
 - It has horn
 - It is a mammal
Specify a fact that distinguishes a cat from a shark.
The sentence should be of the format: 'It can/has/is ...'.
> It is a mammal?
Is it correct for a shark?
> No
I learned the following facts about animals:
 - The cat is a mammal.
 - The shark isn't a mammal.
I can distinguish these animals by asking the question:
 - Is it a mammal?

See you!
```

Report a typo

HINT by JČ **Jegors Čemisovs** Viewed hints

To better understand the requirements of a step, see the files in the test directory.

ⓘ This is the last hint available for this problem! Please post your own hint after completing the problem, future learners will thank you.

Write a program

Code Editor IDE

CONNECTION STATUS

✓ IDE is responding IntelliJ IDEA 2022.1.1

✓ EduTools plugin is responding 2022.5-2022.1-343

Solve in IDE Synchronizing IDE may take a while

src/animals/Main.java

```
package animals;


import java.time.LocalTime;
import java.util.ArrayList;
import java.util.Arrays;
import java.util.Collections;
import java.util.List;
import java.util.Scanner;
import java.util.regex.Matcher;
import java.util.regex.Pattern;

public class Main {
    static LocalTime MORNING_START = LocalTime.of(5, 1);
    static LocalTime MORNING_END = LocalTime.of(12, 0);
    static LocalTime DAY_START = LocalTime.of(12, 1);
    static LocalTime DAY_END = LocalTime.of(18, 0);
    static final Pattern STARTS_WITH_VOWEL = Pattern.compile("^[aeiouy]", Pattern.CASE_INSENSITIVE);
    static final Scanner scanner = new Scanner(System.in);

    public static void main(String[] args) {

        System.out.println(checkTimeOfDay() + "\n");

        System.out.println("Enter the first animal:");
        String userAnimal1 = scanner.nextLine();
        System.out.println("Enter the second animal:");
        String userAnimal2 = scanner.nextLine();

        String userDefinition;
        do {
            System.out.println("Specify a fact that distinguishes " + checkAnimal(userAnimal1) + " from " +
checkAnimal(userAnimal2) + ".\n" +
                    "The sentence should be of the format: 'It can/has/is ...'.\n");
            userDefinition = scanner.nextLine();
        } while (!isUserFactCorrect(userDefinition));
        checkDefinition(userDefinition, userAnimal1, userAnimal2);
        System.out.println("\n" + sayBye());


    }

    public static String checkTimeOfDay() {
        LocalTime now = LocalTime.now();
        if (now.isAfter(MORNING_START) && now.isBefore(MORNING_END)) {
            return "Good morning!";
        } else if (now.isAfter(DAY_START) && now.isBefore(DAY_END)) {
            return "Good day!";
        } else {
            return "Good evening!";
        }
    }

    public static String checkAnimal(String userAnimal) {
        String[] words = userAnimal.split(" ");
        Pattern pattern = Pattern.compile("^the\\s|^an\\s|^a\\s|^THE\\s|^AN\\s|^A\\s");
        Matcher matcher = pattern.matcher(userAnimal);

        if (words[0].equals("the") && !STARTS_WITH_VOWEL.matcher(words[1]).find()) {
            return userAnimal.toLowerCase().replace("the", "a");
        } else if (words[0].equals("the") && STARTS_WITH_VOWEL.matcher(words[1]).find()) {
            return userAnimal.toLowerCase().replace("the", "an");
        } else if (!matcher.find() && STARTS_WITH_VOWEL.matcher(words[0]).find()) {
            return "an " + userAnimal.toLowerCase();
        } else if (!matcher.find() && !STARTS_WITH_VOWEL.matcher(words[0]).find()) {
            return "a " + userAnimal.toLowerCase();
        }
        return userAnimal.toLowerCase();
    }

    public static String removeArticle(String animal) {
```

```
        String[] splittedAnimal = animal.split(" ", 2);
        return splittedAnimal[1];
    }

    public static void checkDefinition(String userDefinition, String firstAnimal, String secondAnimal) {
        String correctedDefinition = checkIfAnswerHasDot(userDefinition);
        String[] words = correctedDefinition.split(" ", 3);
        System.out.println("Is it correct for " + checkAnimal(secondAnimal) + "?");

        String animal1 = removeArticle(checkAnimal(firstAnimal));
        String animal2 = removeArticle(checkAnimal(secondAnimal));

        String yesOrNoAnswer = scanner.nextLine();
        String correctedYesOrNoAnswer = checkYesNoAnswer(checkIfAnswerHasDot(yesOrNoAnswer));

        boolean quit = false;
        while (!quit) {
            if (!correctedYesOrNoAnswer.equals("No") && !correctedYesOrNoAnswer.equals("Yes")) {
                System.out.println(correctedYesOrNoAnswer);
                String yesOrNoAnswer1 = scanner.nextLine();
                correctedYesOrNoAnswer = checkYesNoAnswer(checkIfAnswerHasDot(yesOrNoAnswer1));
            } else {
                quit = true;
            }
        }

        System.out.println("I have learned the following facts about animals:");
        switch (words[1]) {
            case "can":
                if (correctedYesOrNoAnswer.equals("No")) {
                    System.out.println("- The " + animal1 + " " + words[1] + " " + words[2] + ".\n" +
                            "- The " + animal2 + " " + words[1] + "'t " + words[2] + ".");
                } else {
                    System.out.println("- The " + animal1 + " " + words[1] + "'t " + words[2] + ".\n" +
                            "- The " + animal2 + " " + words[1] + " " + words[2] + ".");
                }
                System.out.println("I can distinguish these animals by asking the question:\n" +
                        "- " + words[1].substring(0, 1).toUpperCase() + words[1].substring(1) + " " +
words[0].toLowerCase() + " " + words[2] + "?");
                break;
            case "is":
                if (correctedYesOrNoAnswer.equals("No")) {
                    System.out.println("- The " + animal1 + " " + words[1] + " " + words[2] + ".\n" +
                            "- The " + animal2 + " " + words[1] + "n't " + words[2] + ".");
                } else {
                    System.out.println("- The " + animal1 + " " + words[1] + "n't " + words[2] + ".\n" +
                            "- The " + animal2 + " " + words[1] + " " + words[2] + ".");
                }
                System.out.println("I can distinguish these animals by asking the question:\n" +
                        "- " + words[1].substring(0, 1).toUpperCase() + words[1].substring(1) + " " +
words[0].toLowerCase() + " " + words[2] + "?");
                break;
            case "has":
                if (correctedYesOrNoAnswer.equals("No")) {
                    System.out.println("- The " + animal1 + " " + words[1] + " " + words[2] + ".\n" +
                            "- The " + animal2 + " doesn't have " + words[2] + ".");
                } else {
                    System.out.println("- The " + animal1 + " doesn't have " + words[2] + ".\n" +
                            "- The " + animal2 + " " + words[1] + " " + words[2] + ".");
                }
                System.out.println("I can distinguish these animals by asking the question:\n" +
                        "- Does " + words[0].toLowerCase() + " have " + words[2] + "?");
                break;
        }
    }

    public static String checkYesNoAnswer(String userAnswer) {
        List<String> yesAnswers = new ArrayList<>(Arrays.asList("y", "yes", "yeah",
                "yep", "sure", "right", "affirmative", "correct", "indeed", "you bet", "exactly", "you said it"));
        List<String> noAnswers = new ArrayList<>(Arrays.asList("n", "no", "no way", "nah", "nope",
                "negative", "I don't think so, yeah no"));
```

```
        List<String> clarificationQuestion = new ArrayList<>(Arrays.asList("I'm not sure I caught you: was it yes
or no?",
                "Funny, I still don't understand, is it yes or no?",
                "Oh, it's too complicated for me: just tell me yes or no.",
                "Could you please simply say yes or no?",
                "Oh, no, don't try to confuse me: say yes or no."));
        boolean isAnswerYes = yesAnswers.stream().anyMatch(s -> s.equals(userAnswer.toLowerCase()));
        boolean isAnswerNo = noAnswers.stream().anyMatch(s -> s.equals(userAnswer.toLowerCase()));
        if (isAnswerYes) {
            return "Yes";
        } else if (isAnswerNo) {
            return "No";
        } else {
            Collections.shuffle(clarificationQuestion);
            return clarificationQuestion.stream().findAny().get();
        }
    }

    public static String sayBye() {
        List<String> goodByes = new ArrayList<>(Arrays.asList("See you soon!", "Bye!", "Good bye", "Have a nice
day!",
                "Talk to you later!", "Thank you and Goodbye!", "See you later!"));
        Collections.shuffle(goodByes);
        return goodByes.stream().findAny().get();
    }

    public static String checkIfAnswerHasDot(String userAnswer) {
        Pattern pattern = Pattern.compile("[.,!?\\s]$");
        Matcher matcher = pattern.matcher(userAnswer);
        if (matcher.find()) {
            return userAnswer.toLowerCase().substring(0, userAnswer.length() - 1).trim();
        }
        return userAnswer.toLowerCase().trim();
    }

    public static boolean isUserFactCorrect(String userDefinition) {
        String[] words = userDefinition.split(" ");
        String firstWord = words[0].toLowerCase();
        String regex = "is|can|has";
        String secondWord = words[1].toLowerCase();
        if (!firstWord.equalsIgnoreCase("it") || !secondWord.matches(regex)) {
            System.out.println("The examples of a statement:\n" +
                    " - It can fly\n" +
                    " - It has horn\n" +
                    " - It is a mammal");
            return false;
        } else {
            return true;
        }
    }
}
```

✓ **Correct.**

It was a tricky task, but you nailed it!

11 users liked this problem. **0** didn't like it. **What about you?**

Continue

Solutions (27)

Comments (8) Hints (2) Useful links (0) Solutions (27) Show discussion