

PEER-LED TEAM LEARNING COMPUTER SCIENCE

MEETING 3 – STUDENT VERSION STRINGS, BOOLEANS, AND ENUMERATED TYPES

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Exercise 1: Java Battleship

In this exercise we will be playing a card game, which will make use of the java string class. The game is played with two players as followed:

- 1) Each player writes down a secret string, comprised of one word, 5 – 7 letters long. Whoever guesses their opponent's string first is the winner.
- 2) Each player takes 2 cards.
- 3) Alternate turns. On your turn, pick one more card. You may now play one of the three cards you are holding. When you play a card, your opponent must give you the output of that method with the given argument. If the argument is left blank, you may fill it in with any valid argument. For example, if you have the `s.indexOf(____)` card, you may pick any character to find the index of. So, if your opponent's word is 'coffee' and you pick the character 'c', your opponent would respond with 0. If the method call results in an error, you should say so.
- 4) The first person to play an `s.equals()` card and get a result of "true" or an `s.compareTo()` card and get a result of "0" is the winner!

Exercise 2: Boolean Conditions

This exercise will involve another card game, which will emphasize the use of boolean operators.

Materials:

- 1 deck of blue cards with true or false sentences.
- 1 deck of yellow cards with boolean operators.

Rules of Play:

- Each player begins with 3 blue cards and 3 yellow cards
- Alternate turns. On your turn, try to lay down a logical expression, which evaluates to 'true' using at least 3 cards, then replace the cards with cards of the same color. If you cannot make a 'true' statement, trade in one card of each color for a new card of the same color.
- The first person to put down at least 15 cards wins.

Exercise 3: Musical Boolean Statements

This game is played like musical chairs. Everyone will pick a paper with TRUE or FALSE on one side, and an operator on the other side, and walk around a row of chairs while the music is playing. When the music stops, the first person in the row shows the TRUE/FALSE side of the card, and everyone else alternates, so the second person shows an operator, the third person shows a TRUE/FALSE, etc. It is then the job of the person left standing to decide whether the statement evaluates to true or false.

Exercise 4: Boolean Statements as Selection Mechanisms

Now that we have had some practice evaluating Boolean statements, let's practice writing them. Everyone will take turns writing a Boolean statement which will select certain elements from a given category using attributes commonly associated with that category. The lists are given below, but feel free to add to them. For example, if you want to select strawberries and apples from a list of foods, you could write:

```
category.equals("fruit") && color.equals("red")
```

The rest of the group will name your selection.

Foods

Apples	Chips	Popcorn
Bananas	Hamburgers	Pretzels
Blueberries	Hotdogs	Rice
Bread	Oranges	Spaghetti
Chicken	Pickles	Strawberries

Celebrities

Angelina Jolie	Conan O'Brian	Jennifer Lopez
Ben Affleck	Dana Carvey	John Lennon
Beyonce	George Carlin	Marilyn Monroe
Brad Pitt	Jay Leno	Mr. T
Chris Rock	Jay Z	Tiger Woods

Animals

Bears	Dolphins	Kangaroos
Cats	Ducks	Koalas
Chimpanzees	Elephants	Penguins
Cows	Giraffes	Pigs
Dogs	Gorillas	Snakes

Exercise 5: Enumerated Types

Enumerated types can be used in Java to declare sets of elements. In this exercise, we will practice declaring enumerated types. Your peer mentor will give you an example, and then take turns writing the declaration statements for different enumerated types.

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