

**CSE 2102: Introduction to Software Engineering**

**String Data Type, Scanner, File I/O**

**Assigned: Feb 1, 2022, Due: Feb 8, 2022**

**A. Scanner class (25 pts.)**

Write a program `VendingChange.java` that accepts an amount in the range of 1 to 99 cents from the user, and outputs a combination of coins that equals that amount of change, using the least number of coins.

Input cmd:

```
java VendingChange
```

Output:

```
Enter the amount between 1 to 99: 89
89 cents in coins can be given as:
3 quarters
1 dimes
0 nickels and
4 pennies
```

**B. String & Scanner (25 pts.)**

Write a program `StringConcat.java` that prompts the user to input two strings one by one. The program then converts the strings to lower case, concatenates the two strings, and prints out the concatenated string and the length of the concatenated string.

Input cmd:

```
java StringConcat
```

Output:

```
Enter the first string: Rock
Enter the second string: Star
The concatenated string is: rockstar
The length of the concatenated string is: 8
```

**C. File I/O, String, Scanner (25 pts.)**

Write a program `PrintOdd.java` that reads every line in a text file and writes the line to the output file after deleting the first word. The program must prompt the user for both the input and output files. It should include code to throw exceptions for any erroneous conditions that

may arise with respect to both input and output files. For example, assume that the input file `in.txt` contains the following lines:

The term happiness is used in the context of mental or emotional states, including positive or pleasant emotions ranging from contentment to intense joy. It is also used in the context of life satisfaction, subjective well-being, eudaimonia, flourishing and well-being.

Input cmd:

```
java PrintOdd
```

Output:

```
Enter the name of the input file: in.txt
Enter the name of the output file: out.txt
```

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The contents of the output file `out.txt` will be:

term happiness is used in the context of mental or states, including positive or pleasant emotions from contentment to intense joy. It is also used the context of life satisfaction, subjective well-being, flourishing and well-being.

#### **D. Ambiguous Specifications**

In software engineering, ill-specified systems where the requirements are incomplete, ambiguous, misunderstood or misinterpreted are very common. For problem C above, comment briefly on whether the specification of the problem is complete. Are there any ambiguities? Does it consider all the possibilities? Identify any ambiguities and discuss whether (and how) you might consider them into your implementation for the solution. This is a thought experiment, and you are not required to implement the solution.

#### **Submission**

The following deliverables must be submitted on HuskyCT by midnight on February 8, 2022.

- a) Well-documented code.
- b) At least 2 test cases per problem/part that you used to test the code (submit in a separate document as a txt file or a word document).
- c) Please make sure that your code compiles, we will test your code offline with specific test cases (common to all).
- d) Response to part D must be submitted in a separate document.
- e) Late submissions (without any legitimate excuse) will incur a penalty of 10% per day.