Homework 4

CSC-121, Fall 2025

Submission Instructions: Create a single text file for your answers (Use .txt or .pdf) with your name and ID number at the top. Include code written for any programs, and type-written answers to non-coding questions. Submit the file on Canvas to complete the assignment. You may work in groups or use genAI help, but written answers must be in your own words.

Let's start this assignment with an Inspirational Quote:

The History of every major Galactic Civilization tends to pass through three distinct and recognizable phases, those of Survival, Inquiry and Sophistication, otherwise known as the How, Why, and Where phases. For instance, the first phase is characterized by the question "How can we eat?" the second by the question "Why do we eat?" and the third by the question "Where shall we have lunch"?

— Douglas Adams, *The Hitchhiker's Guide to the Galaxy*

Q1. Warm up!

1. When it is sunny, Sarah likes to wear sandals. When it is rainy, Sarah wears socks and boots. When it is cloudy but not rainy, she wears her sandals with socks. Sarah has questionable fashion sense.

Draw a flowchart diagram to describe what Sarah likes to wear based on the weather.

2. How do you decide what to eat? Similar to lecture, write up a flowchart diagram describing your lunch decision process.

Q2. Would you like fries with that?

Quick Burger is a new Los Angeles fast food restaurant. Their business model is to serve individual customers as quickly as possible, and at very low prices. To do this, they offer a very limited menu with no customization options.

Quick Burger Menu

Quick Burger: $5.00
Quick Fries: $2.00
Quick Shake: $3.00

Write a Java program to take a customer's order. The program should start by saying the restaurant's catch phrase: "Welcometoquickburger! Hurryup-hurryup!"

Next, your program should ask if the customer would like one of each menu item with yes or no questions. Use a Scanner and assume a single lowercase character as the answer for each question: Either 'y' for yes, or 'n' for no.

At the end, report each item that was ordered. If 'n' was entered for some item, do not report it. Then, report the subtotal, sales tax rate (Assume 9.5%, which is the current tax rate for prepared food in Los Angeles County), and the total cost (Subtotal + tax). To calculate tax, multiply the subtotal by 0.095.

HINT: Use if statements to check if the user typed 'y' or 'n'. Then, set a boolean flag to remember the choice.

Example Output:

```
None
Welcometoquickburger! Hurryup-hurryup!

Do you want a Quick Burger?
> y

Do you want Quick Fries?
> n

Do you want a Quick Shake?
> y

Quick Burger = $5.00
Quick Shake = $3.00

Subtotal: $8.00
Tax: 9.5% = $0.76
Total: $8.76

Thankyouforchosingquickburger! Hurryup-hurryup!
```

Q3. Would you like caviar with that?

Quick burger has a lot of competition. One of their competitors is Butler Burger, who bill themselves as "the choice for sophisticates with refined taste buds." Their business model is based on selling expensive add-ons to customers' meals.

Butler Burger Menu

Baron's Burger: $15.00
- Add-on, Worcestershire Sauce: $5.00
- Add-on, Pork Belly Bacon: $10.00
- Add-on, Caviar: $50.00

Dutchess's Fries: $8.00
- Add-on, Capers: $5.00
- Add-on, Caviar: $30.00

Marie Antoinette's Cake Shake: $12.00
- Add-on, Champagne Sprinkles: $10.00

Create a Java program to ask for a customer's order. Just like Quick Burger, use yes/no questions. If a user answers 'y' to an item, then also ask about each of the add-ons for that item. Do not ask about add-ons for items the user says 'n' to. Report the ordered items and costs like you did for Quick Burger. Don't report the add-ons, just add the cost of the add-ons to the reported item prices.

HINT: Use nested if statements here. Check if the user says 'y' to a main menu choice with an if statement, then ask them about the add-ons with nested if statements. Try drawing out the flowchart diagram first, then code it.

Example Output:

```
None
Greetings and Salutations from Butler Burger. How may we serve
you?

Would you care for a Baron's Burger?
> y

Would you like to add on some Worcestershire Sauce to your
burger?
> y

How about some Pork Belly Bacon?
> n

Top off your burger with our finest Caviar?
> y

Would you care for some Dutchess's Fries?
> n

Would you care for a Marie Antoinette's Cake Shake?
> y

Spice up your shake with some Champagne Sprinkles?
> n

Baron's Burger = $70.00
Marie Antoinette's Cake Shake = $12.00

Subtotal: $82.00
Tax: 9.5% = $7.79
Total: $89.79

Splendid choices! It was a pleasure serving you.
```

Q4. Would you like ice water with that?

The burger business is booming, and the hip new spot everyone is talking about is Bongo Burger. They infuse their lamb burgers with exotic herbs and spices and top them with a curry-based sauce to give their food a truly unique flavor. However, the food has proved to be too spicy for some customers. To address this, they have decided to ask customers what level of spiciness they would like for their food.

Bongo Burger Menu

Bongo Burger: $10.00
Pakora Curry Fries: $5.00
Chai Shake: $8.00

Spiciness Levels:
1. *Mild + $0.00*
2. *Medium + $1.00*
3. *Hot + $2.00*
4. *FIRE + $3.00*

Create a Java program to take customers' orders using the same yes/no questions as before. This time, you will also need to ask what level of spiciness to make the food (Yes, even for the shake). Report the spiciness along with the requested items.

HINT: Use a Scanner to ask for the spiciness level as an integer, then use a switch statement to choose the spiciness add-on price. You can assume the user will always provide you with a valid integer when asked.

Example Output:

```
None
Welcome to Bongo Burger! What flavors would you like today?

Would you like a Bongo Burger?
> y

What level of spiciness would you like?
1: Mild
2: Medium
3: Hot
4: FIRE
> 3

Would you like some Pakora Curry Fries?
> n

Would you like a Chai Shake?
> y

What level of spiciness would you like?
1: Mild
2: Medium
3: Hot
4: FIRE
> 1

Bollywood Burger (Hot) = $12.00
Chai Shake (Mild) = $8.00

Subtotal: $20.00
Tax: 9.5% = $1.90
Total: $21.90

Thank you for banging to the beat of your own drum at Bongo
Burger!
```

Q5. VIP Perks

To capitalize on all of the new burger shops opening up in Los Angeles, a new company has come in named Burger Club and they have partnered with all of the burger shops. Anyone that is a member of Burger Club gets to place orders at any Burger Club partner restaurant without having to pay tax, AND they also get a 5% discount on every order. Wow!

Burger Club has just made partnership agreements with Quick Burger, Butler Burger, and Bongo Burger. Make changes to each of your ordering programs to ask if the user is a Burger Club member. If they are not, ring up their charges the normal way. If they are a member, apply the 5% discount and skip adding tax. To get the discount amount, multiply the subtotal by 0.05.

HINT: Use if and else to choose between calculating the price with tax or calculating the total with the discount.

Example Output 1:

```
None
Welcometoquickburger! Hurryup-hurryup!

...

Quick Burger = $5.00
Quick Shake = $3.00

Are you a member of Burger Club?
> n

Subtotal: $8.00
Tax: 9.5% = $0.76
Total: $8.76

Thankyouforchosingquickburger! Hurryup-hurryup!
```

Example Output 2:

```
None
Welcometoquickburger! Hurryup-hurryup!

...

Quick Burger = $5.00
Quick Shake = $3.00

Are you a member of Burger Club?
> y

Subtotal: $8.00
Burger Club Discount: 5.0% = $0.40
Total: $7.60

Thankyouforchosingquickburger! Hurryup-hurryup!
```