Java Programming Project 1: Online Specialty Pizza Shop

2020-1
Due: May 18, 2020 (11:59 p.m.)

Instructions: Please create a Java application to solve the following problem. Submit electronic (Cyber Campus) copies of your program source code and two or more sample runs to me by the deadline. For the electronic submission of your program, you may simply compress (i.e., zip) your entire project folder (IntelliJ IDEA, Eclipse, etc.) and upload that to Canvas instead of uploading the individual Java source code files. Documentation requirements follow the problem specification.

Problem: Create a Java application that implements an online specialty pizza shop. To clarify the problem, I have divided it into 4 parts.

Part 1: Obtain Order. The program begins by welcoming the customer. It then displays a specialty pizza menu and prompts the customer to make a selection. If the customer selects 1 through 5 (pizza menu), the program responds by displaying a second menu of sizes and corresponding prices. If the customer selects 1 through 4 (size menu), the program prompts the customer to enter a quantity, then calculates and displays the current order total, formatted as currency. If the customer enters an invalid choice for either menu, the program displays an error message, then prompts the customer to enter a valid choice until s/he does so. If the customer enters a quantity of 0 (zero) or less, the program similarly displays an appropriate error message, then prompts the customer to enter a valid quantity until s/he does so. *Part 1* of the program "loops" until the customer selects 6 to exit the pizza menu.

Part 2: Display Order Summary. After the customer exits the pizza menu, the program displays a summary of the customer's order. The order summary must be formatted as shown in the sample runs.

Part 3: Process Payment. After displaying the order summary, the program asks the customer how s/he wishes to pay for the order. If the customer chooses 1 for cash, the program simply displays the cash payment summary. If the customer chooses 2 for credit, the program prompts the customer to enter payment information (card holder full name, followed by card type, number, and expiration date), then displays the credit payment summary. Both payment summaries must be formatted as shown in the sample runs. If the customer enters an invalid choice for payment option, the program displays an error message, then prompts the customer to enter a valid option until s/he does so.

Part 4: Thank Customer. Finally, the program thanks the customer for visiting the pizza shop.

Implementation Requirements and Guidelines:

- You must use a minimum of two classes to implement this program: a "driver" containing `main` and an `OrderItem` class.
- The customer's order must be stored as an array or `ArrayList` of `OrderItem` objects.
- An `OrderItem` object must have four instance variables representing quantity, size, type, and price of a specific order item (e.g., 1 large "Meat Lovers" pizza for $19.00).
- Required methods for the `OrderItem` class include:
  - A no-argument (default) constructor that initializes the four instance variables to appropriate values.
  - A four-argument constructor that initializes the four instance variables to the parameter values.
  - *set* and *get* methods for each of the four instance variables.
  - A `toString` method to generate nicely formatted output.

- You must also use methods to carry out the primary tasks of the driver (class containing `main`). Some possible methods include:
  - `public void displayPizzaMenu();` // Displays pizza menu
  - `public int getPizzaChoice();` // Returns pizza choice
  - `public void processCreditCardPayment(double payment);` // Processes credit card payment etc.
- The program must keep a running total of the cost of the customer's order.
- You may change the pizza types and prices if you like, as long as there are still 5 different types and 4 different prices.
- Your program output should resemble the sample runs at the end of this document.

Documentation Requirements:

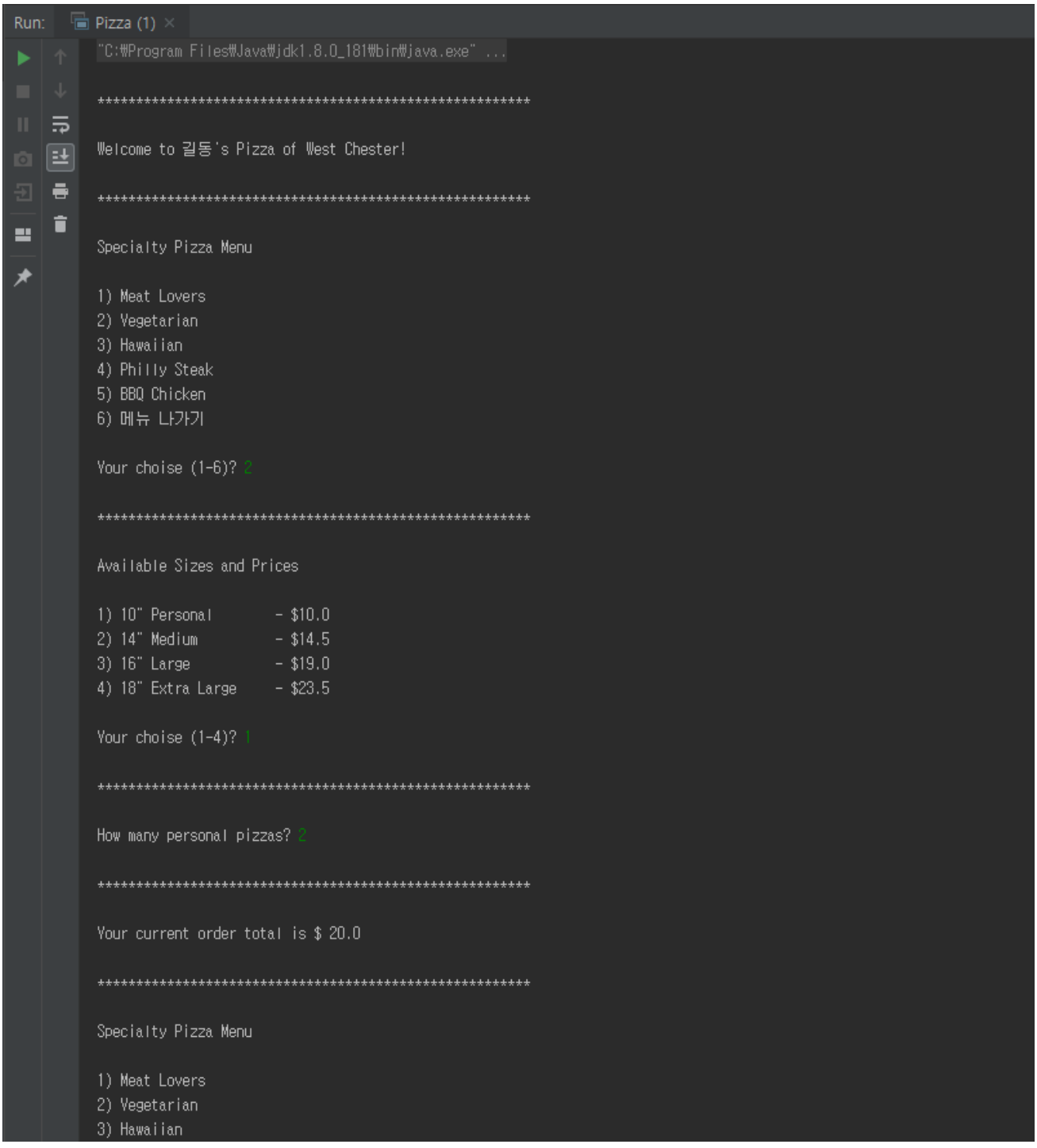
1) Each program source code file (i.e., Java class) must have a header at the beginning of the class containing the following:
   - Name of author, HKNU e-mail address of author, name of course, assignment number and due date, name of file, purpose of class, compiler/IDE, operating system, and any external references used (e.g., Website)
   - Example:

```
/*
Author: Samkeun Kim
E-mail: skim@hknu.ac.kr
Course: Java Programming
Assignment: Programming Assignment 1
Due date: 05/18/2020
File: SpecialtyPizzaMenu.java
Purpose: Java application that implements an online specialty pizza
shop
Compiler/IDE: Java SE Development Kit 8u181/IntelliJ IDEA
Operating system: MS Windows 10
Reference(s): Java 8 API - Oracle Documentation
    (http://docs.oracle.com/javase/8/docs/api/);
    (Include ALL additional references (Web page, etc.) here.)
*/
```

2) The purpose of each method in the source code file(s) must be documented as shown in the example below. I prefer that you use the **javadoc** comment style.

```
/** This method checks a given response for correctness.
*
* @param response The response to check
* @return True if the response was correct, false otherwise
*/
public boolean checkAnswer(String response) {
      // Method definition (i.e., body)
}
```

Sample run #1 *(User correctly places order then exits menu.)*:

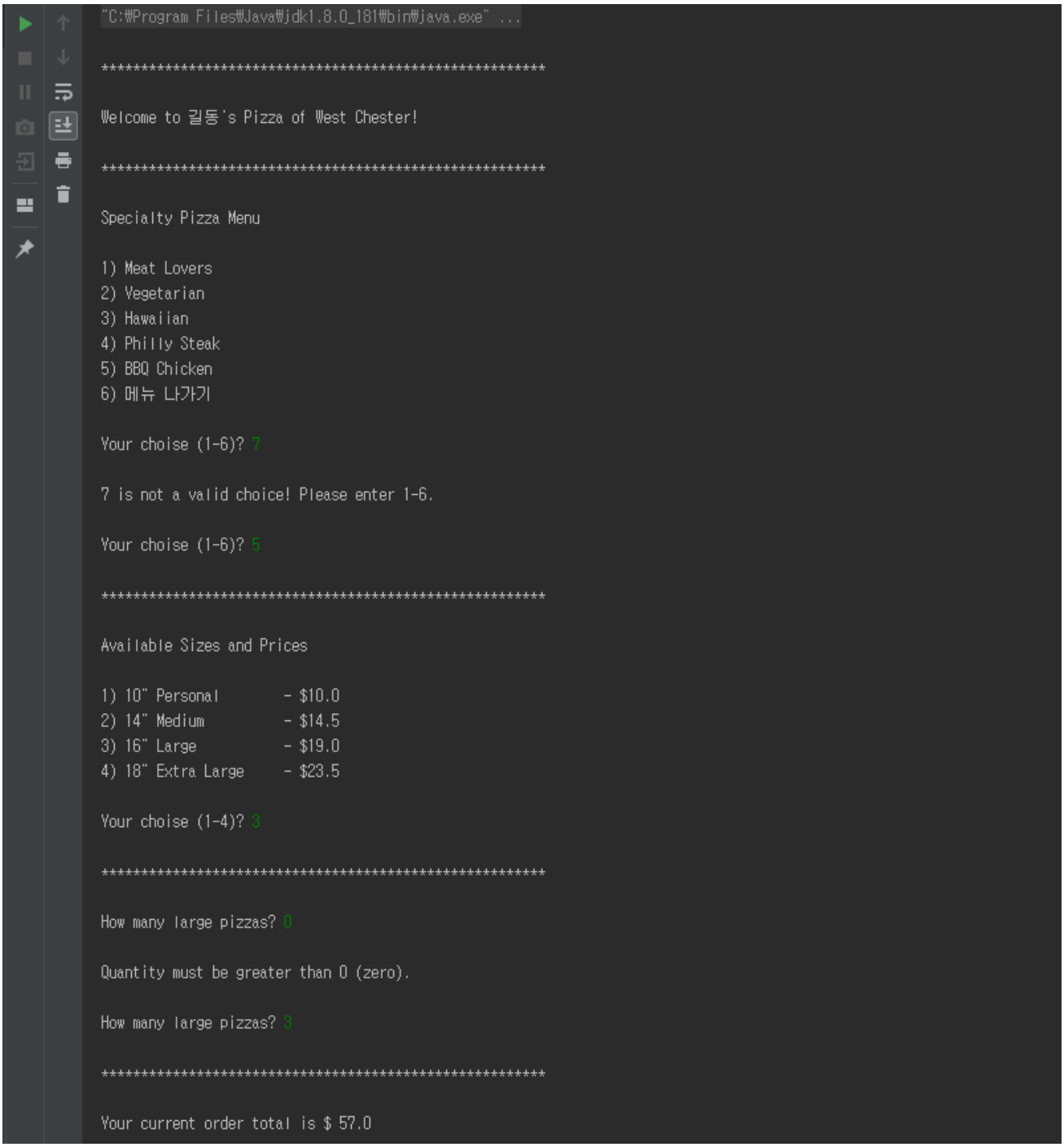


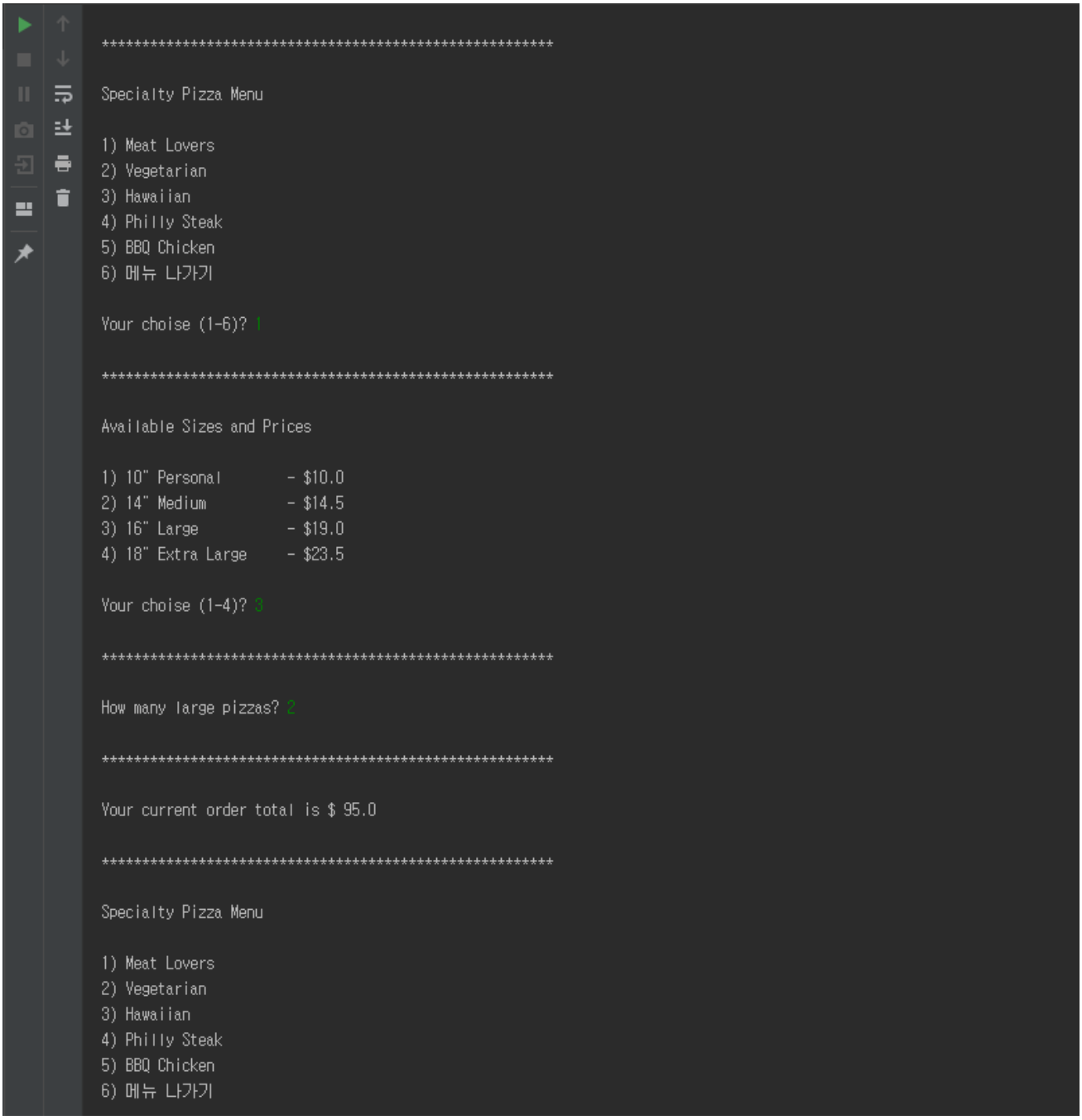
```
4) Philly Steak
5) BBQ Chicken
6) 메뉴 나가기

Your choise (1-6)? 4

*****************************************************

Available Sizes and Prices

1) 10" Personal        - $10.0
2) 14" Medium          - $14.5
3) 16" Large           - $19.0
4) 18" Extra Large     - $23.5

Your choise (1-4)? 4

*****************************************************

How many extra large pizzas? 1

*****************************************************

Your current order total is $ 43.5

*****************************************************

Specialty Pizza Menu

1) Meat Lovers
2) Vegetarian
3) Hawaiian
4) Philly Steak
5) BBQ Chicken
6) 메뉴 나가기

Your choise (1-6)? 1

*****************************************************

Available Sizes and Prices
```

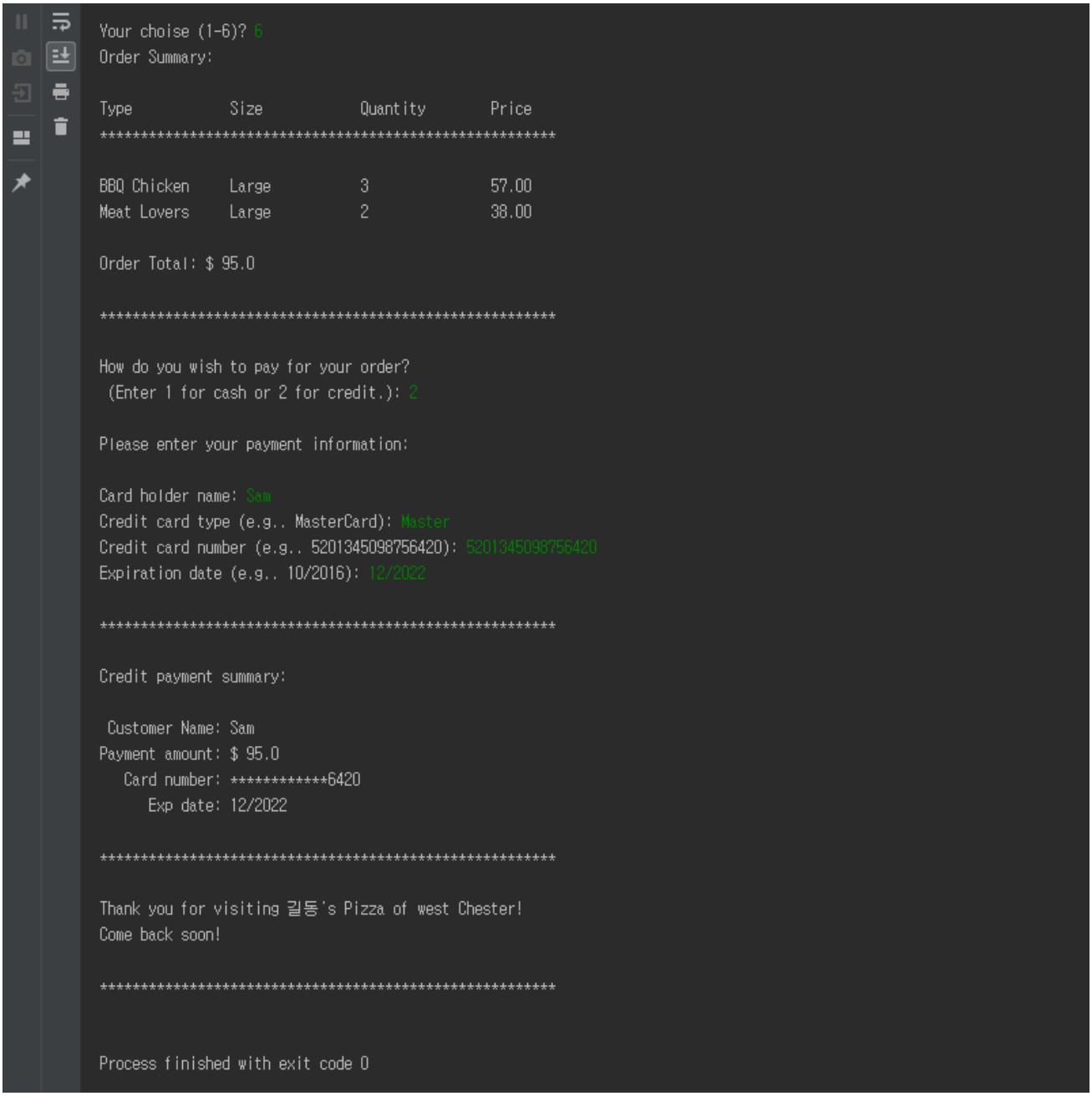
```
1) 10" Personal        - $10.0
2) 14" Medium          - $14.5
3) 16" Large           - $19.0
4) 18" Extra Large     - $23.5

Your choise (1-4)? 2

*****************************************************

How many medium pizzas? 2

*****************************************************

Your current order total is $ 72.5

*****************************************************

Specialty Pizza Menu

1) Meat Lovers
2) Vegetarian
3) Hawaiian
4) Philly Steak
5) BBQ Chicken
6) 메뉴 나가기

Your choise (1-6)? 6
Order Summary:

Type            Size            Quantity        Price
*****************************************************

Vegetarian      Personal        2               20.00
Philly Steak    Extra Large     1               23.50
Meat Lovers     Medium          2               29.00

Order Total: $ 72.5

*****************************************************
```

```
How do you wish to pay for your order?
 (Enter 1 for cash or 2 for credit.): 1

Cash payment summary:

Payment amount: $ 72.5

*****************************************************

Thank you for visiting 길동's Pizza of west Chester!
Come back soon!

*****************************************************


Process finished with exit code 0
```

Sample run #2 *(User enters invalid choice(s) then correctly places order and exits menu.)*:




****
Specialty Pizza Menu
1) Meat Lovers
2) Vegetarian
3) Hawaiian
4) Philly Steak
5) BBQ Chicken
6) 메뉴 나가기
Your choise (1-6)? 1
****
Available Sizes and Prices
1) 10" Personal - $10.0
2) 14" Medium - $14.5
3) 16" Large - $19.0
4) 18" Extra Large - $23.5
Your choise (1-4)? 3
****
How many large pizzas? 2
****
Your current order total is $ 95.0
****
Specialty Pizza Menu
1) Meat Lovers
2) Vegetarian
3) Hawaiian
4) Philly Steak
5) BBQ Chicken
6) 메뉴 나가기


Your choise (1-6)? 6
Order Summary:
Type Size Quantity Price
BBQ Chicken Large 3 57.00
Meat Lovers Large 2 38.00
Order Total: $ 95.0
How do you wish to pay for your order?
(Enter 1 for cash or 2 for credit.): 2
Please enter your payment information:
Card holder name: Sam
Credit card type (e.g., MasterCard): Master
Credit card number (e.g., 5201345098756420): 5201345098756420
Expiration date (e.g., 10/2016): 12/2022
Credit payment summary:
Customer Name: Sam
Payment amount: $ 95.0
Card number: ************6420
Exp date: 12/2022
Thank you for visiting 길동's Pizza of west Chester!
Come back soon!
Process finished with exit code 0