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CS – 499

**Project Two: Algorithms and Data Structure**

This project was another project from my CS 145 class. For this program we were asked to design a Pet Bag Hotel check-in service. We were asked to give prompts to the user to answer questions needed for the program to calculate the amount they would be charged for how long their pet stayed. The clients were given two options of having a cat stay or a dog. The Pet Bag Hotel program fulfilled the requirements for the Algorithms and Data Structures.

**[CS-499-01] Employ strategies for building collaborative environments that enable diverse audiences to support organizational decision making in the field of computer science.**

* This program fulfills this requirement by giving prompts to the user to input information the program needs to calculate the amount due for their pet to stay at the hotel. With prompts such as what type of pet the owner has, how many nights the pet will stay, and does the owner want their pet to have a bath while staying there. These factors are considered when determining how much the client will owe.

**[CS-499-02] Design, develop, and deliver professional-quality oral, written, and visual communications that are coherent, technically sound, and appropriately adapted to specific audiences and contexts.**

* Pet Bag fulfills this requirement by writing comments above the lines of code explaining to future programmers that might edit the program what it is doing. The program includes clear prompts for the client to input information needed by the hotel to add up the amount due. Any audience can use this program by following the prompts given on the screen.

**[CS-499-03] Design and evaluate computing solutions that solve a given problem using algorithmic principles and computer science practices and standards appropriate to its solution, while managing the trade-offs involved in design choices (data structures and algorithms).**

* The Pet Bag Program fulfills this requirement by reading the users input from the prompts and calculating the assigned amount of what they owe by the end of the check-in process. They input the nights their pet will stay, if they want their pet to have a bath or haircut, and what type of pet they have since prices vary for cats and dogs. The program then takes this information and the assigned amounts to calculate what is due. It is important to have variables assigned to correct amounts in Java or any other language so that the program is not confused about what to calculate together.

**[CS-499-04] Demonstrate an ability to use well-founded and innovative techniques, skills, and tools in computing practices for the purpose of implementing computer solutions that deliver value and accomplish industry-specific goals (software engineering/design/database).**

* My program Pet Bag fulfills this requirement by using an innovative calculation to read user input and take its value to produce amount due for the client. Most programs are supposed to have an end result or goal. This program does that by providing a client with the amount they owe to the hotel after inputting certain information as prompted on a screen.

**[CS-499-05] Develop a security mindset that anticipates adversarial exploits in software architecture and designs to expose potential vulnerabilities, mitigate design flaws, and ensure privacy and enhanced security of data and resources.**

* In Pet Bag I included additional features to fulfill this security mindset requirement. One feature I included was to prompt the hotel employee to enter their user name and password to access the program. This helps prevent unwanted users messing with the information. The code is designed to follow an algorithm which will help the client know what they owe the hotel for the pet to stay there. It is to implement the original design of the program so that other developers cannot mimic the code or program. Having secure code is important when helping clients with their software needs.