**Introduction**

Explain the purpose of the project (1 Paragraph)

The purpose of this project is to learn how to use Java to read data from a CSV file and then transfer the data from the file into objects that correspond to the file's records and perform different operations on the data, such as computing the average of GPA's, Number of Teaching Assistance and so on. It also included practicing ArrayLists, inheritance, and polymorphism in Java. Implementation of this project led to responding to questions asked in the project.

**Code Explanation**

This program reads a CSV file containing student data, creates objects of different classes for each student based on their degree, and performs various operations on the data to answer specific questions.

The program defines five methods: objectSelection, numberOfTA, studentDisplay, biologyMajor, and averageGPA, and listOfDegrees.

The objectSelection method creates an object of the appropriate subclass of Student based on the degree of the student. This method takes seven parameters: the student's first name, last name, major, GPA, whether or not the student is a TA, the name of the student's advisor, and the number of credit hours the student has completed.

The numberOfTA method iterates through the students ArrayList and prints the names of all TAs and the total number of TAs.

The studentDisplay method iterates through the students ArrayList and prints the information of all students with a GPA greater than 3.75.

The biologyMajor method calculates the average credit hours of all students majoring in Biology.

The averageGPA method calculates the average GPA of all students with a B.S. degree.

The listOfDegrees method prints the total credit hours completed by students in each degree program: Ph.D., M.S., B.S., and Undeclared.

In the main method, the program creates an ArrayList to store the student data, reads the CSV file, populates the students ArrayList using the objectSelection method, and then calls each of the five methods to answer the specific questions. The program prints the results of each method, separated by a line of hyphens.

The objectSelection() method selects the type of the object that we need to be created based on the type of degree

**Inheritence:**

To implement inheritance, the class Student was made the parent class, and other classes based on their degrees such as BSStudent, MSStudent, and PhDStudent, Undeclared as child classes that inherit from the parent class Student. The child classes inherit all the properties and methods of the parent class and override some of these methods and add new ones.

The benefits of this implementation are that it allows for code reusability and reduces duplication. Since the child classes inherit from the parent class, they can reuse all of the parent class's code, which saves time and effort in development. Additionally, it provides a way to organize the code into a hierarchy and allows for easier maintenance and updates.

**Result**













