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Applied Programming Concepts

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Assignment 2

**Incremental Model**

**Timeline of Incremental Changes/Adjustments:**

1. Create the base class with general data which will be utilized and inherited by other classes. In addition. Create the derived classes for students, instructors, and administrators. Each class will contain attributes (including the derived ones) and functions specific to each. **(1 Week)**
   1. User Class
      1. First name
      2. Last name
      3. ID number
   2. Student Class
      1. Major
      2. School
      3. GPA
   3. Instructor Class
      1. Department
      2. School
      3. Hire date
   4. Administrator Class
      1. Division
      2. Hire date
2. Create the functionality of the classes by implementing the get/set functions, and other functionality highlighted in the requirements for the program **(2 weeks)**
   1. Base Class **(2 days)**
      1. Get/Set functions for name and ID
      2. Print all function
   2. Student Class **(4 days)**
      1. Get/Set functions for major, school, and GPA
      2. Search for courses
      3. Add or drop courses
      4. Print student schedule
      5. Print all function
   3. Instructor Class **(4 days)**
      1. Get/Set functions for department, school, and hire date
      2. Print schedule
      3. Print class lists
      4. Search for courses
      5. Print all function
   4. Administrator Class **(4 days)**
      1. Get/Set functions for division and hire date
      2. Add courses
      3. Remove courses
      4. Add and remove users
      5. Add and remove students
      6. Search and print rosters and courses
      7. Print all function
3. Program the interface for the program, allowing for the data to be read, added, and manipulated, depending on the user group
   1. Set up inheritance hierarchy between classes and ensure they are visible by the main class, which contains the interface
   2. Add functionality to ask which user, and ask for authentication for all user types
   3. User can select the following: Student, Instructor, or Administrator
   4. If student:
      1. Allow the user to search for courses, add or drop classes, print their schedule, or print all information on file for their user type
   5. If instructor:
      1. Allow the user to print their schedule, print their class lists, search for courses, or print all information on file for their user type
   6. If administrator:
      1. Allow the administrator to add courses, remove courses, add and remove users, add and remove students, search and print rosters and courses, print all personal data affiliated with that administrator
4. Implement all classes to work together, test a variety of cases, and check for bugs by using invalid inputs
5. Release program and implement with existing systems used by the client