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| **Branch/Semester** | BSc. IT (Cloud & Application Development) / II |
| **Subject Name:** | Advance of Application Programming |
| **Subject Code:** | 05CA0203 |
| **Assignment:** | Assignment No. 4 (Input and Output in C++ Programs) |
| **Date:** |  |
| **Faculty Name:** | Prof. Abhishek Chauhan |

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| **1.** | Create a class hierarchy for vehicles, with a base class Vehicle and derived classes like Car, Truck, and Motorcycle. Implement file stream operations to read and write vehicle information to a text file, including details like vehicle type, model, and year. |
| **2.** | Develop a program for managing student records where you use text file handling to store student information such as name, ID, and grades in a text file. Additionally, implement binary file handling to store sensitive data like passwords securely. |
| **3.** | Write a program that reads data from a CSV file and calculates statistics such as average, maximum, and minimum values. Implement error handling to deal with file not found or data format errors using exception handling techniques like try-catch blocks. |
| **4.** | Create a hierarchy of shapes with a base class Shape and derived classes like Circle, Square, and Triangle. Use file stream operations to save and load shape data to/from a text file, including attributes like dimensions and colors. |
| **5.** | Write a program that reads student scores from a text file and calculates their average. Implement error handling to handle cases like file not found or invalid data format using exception handling, displaying a user-friendly message in case of errors. |