**OBJECT-ORIENTED PROGRAMMING**

|  |  |
| --- | --- |
| Graded lab 3 | |
| **Topic** | Inheritance |
| **Objective** | To test the understanding of inheritance and its types. |

**Task: Blogging Platform Implementation**

You have been assigned to develop a simplified version of a Blogging Platform in C++. Design three classes: **User**, **BlogPost**, and **Blogger**. The **User** class will serve as the base class, and the **BlogPost** and **Blogger** classes will be derived from the **User** class.

**Base Class: User**

* **Private Member Variables:**
  + **username** (string): to store the username of the user.
  + **dateJoined** (string): to store the date when the user joined the platform.
* **Public Member Functions:**
  + Default constructor: Initializes **username** as "Unknown" and **dateJoined** as the current date.
  + Parameterized constructor: Accepts parameters for **username** and **dateJoined** and initializes the **User**.
  + **void displayUserInfo()**: Displays the username and dateJoined of the user.

**Derived Class 1: Blogger**

* **Inherits publicly from User.**
* **Additional Private Member Variables:**
  + **bio** (string): to store the bio of the blogger.
  + **followers** (int): to store the number of followers.
* **Additional Public Member Functions:**
  + Default constructor: Calls the base class default constructor and sets **bio** to "No bio available" and **followers** to 0.
  + Parameterized constructor: Accepts parameters for **username**, **dateJoined**, **bio**, and **followers**, and initializes the **Blogger**.
  + **void displayBloggerInfo()**: Extends **displayUserInfo()** to include the bio and followers.

**Derived Class 2: BlogPost**

* **Inherits privately from User.**
* **Additional Private Member Variables:**
  + **postID** (int): to store the ID of the blog post.
  + **content** (string): to store the content of the blog post.
* **Additional Public Member Functions:**
  + Default constructor: Calls the base class default constructor and sets **postID** to 0 and **content** to "No content available".
  + Parameterized constructor: Accepts parameters for **username**, **dateJoined**, **postID**, and **content**, and initializes the **BlogPost**.
  + **void displayBlogPostInfo()**: Extends **displayUserInfo()** to include the postID and content.

**Main Function:**

* Create objects of the **Blogger** and **BlogPost** classes.
* Demonstrate the use of public and private inheritance in the context of multilevel inheritance.
* Display the information of bloggers and blog posts using the appropriate member functions.

**Task Requirements:**

* Utilize public and private inheritance appropriately in the derived classes.
* Demonstrate how access specifiers affect member accessibility within the inheritance hierarchy.
* Create objects of each class and display their information using the appropriate member functions.
* Discuss and explain how the choice of access specifiers affects the design and functionality of the classes.