

Assignment 4: C++

ESS 201-Programming II

International Institute of Information Technology – Bangalore

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Problem:

In this assignment, you are going to model a Social Media Application, which consists of the following classes: System, Posts, and Users

Descriptions of the Classes:

- **System**

Should maintain a list of all posts

You may use `std::vector` for this

Should maintain a list of all users

You may use `std::vector` for this

Should maintain the name of the application.

You may use `std::string` for this

(This should be initialised in a parameterised constructor.)

Getters and Setters should be implemented wherever you see fit.

Access Control:

A User ID is passed into every method of this class (except for the Constructor). If the User ID provided does not belong to a User in the List of Users, the method should terminate at that point (Invalid User.)

- **User**

Should maintain a unique User ID (statically generated by the User class.) - The values will be 1,2,3,...

Should maintain a name

You may use `std::string` for this

Should maintain a list of users they follow (List of User objects)

You may use `std::vector` for this

Should maintain a list of their posts (List of Post objects)

You may use `std::vector` for this

Should have methods to create Posts and follow/unfollow another user

Getters and Setters should be implemented wherever you see fit.

- **Post**

Should maintain a unique Post ID (statically generated by the Post class.) - The values will be 1,2,3,...

Each post will have a unique User who posts - the class will maintain a User ID Attribute.

Should maintain content

You may use `std::string` for this

Should maintain a year of posting

Getters and Setters should be implemented wherever you see fit.

Initialise posts with the help of parameterised constructors

Input/Output Format:

All inputs are taken through `std::cin` and all outputs involve `std::cout`

Each line of the input will contain a keyword(in caps) followed by arguments. (Note: If an operation is invalid, print Invalid Input then and there and continue printing from the next line.)

CREATE nameOfSystem

USER usernameOfNewUserCreated

FOLLOW usernameOfTheOneFollowing usernameOfTheOneBeingFollowed

POST usernameOfTheOnePosting YearOfPost ContentOfPost(can contain spaces)

EXIT

EXIT specifies the end of the input. You must call all destructors here.

You must first print the name of the System (i.e the parameter in CREATE)

At the end of the input, you have to print all the usernames , their user IDs, and the usernames of the other users they follow (separated by a line)

After this, you have to print all the posts' usernames, post IDs, and years of posting - in ascending order of their IDs (separated by a line)

Sample Input:

CREATE sma

USER username1

USER username2

FOLLOW username1 username2

FOLLOW username1 username3

POST username1 2021 OOP is cool

POST username3 2020 This should not work

FOLLOW username2 username1

POST username2 2019 READMEs are cool

USER username3

EXIT

Sample Output:

sma

Invalid Input

Invalid Input

username1 1 username2

username2 2 username1

username3 3

username1 1 2021

username2 2 2019