PROGRAMMING ASSIGNMENT #6
CS 2303 C-TERM 2020
NEWSIES!

DUE: TUESDAY, MARCH 3, 2020   10PM

(0) Tech News

In our version of the "Tech News" staff, there is an Editor in Chief, a Deputy Editor, and 6 Assistant Editors, one for each of the six departments in the publication:

News, Editorials&Opinion, Features, Sports, Entertainment, and Humor.

There are also numerous writers of two ranks: Cub Reporters who have been on the job for just a term or two, and Reporters who have at least two full terms of experience behind them.

We will have enumerated types for these notions, namely "article" and "position", available for use. They are defined already in the starter code.

(1) Extend the Student class to include the fields that pertain to reporters:

position title_ (Editor-in-Chief, Deputy Editor, Asst. Ed., Reporter, Cub)

article primary_   (Writer's principal department of contribution)
article secondary_ (Writer's back-up responsibility–can be None: '6')
article tertiary_   (Writer's emergency responsibility–None for Cubs)

int term_goal_ (Number of articles to contribute for class credit)
int term_kount_ (Number of articles contributed this term to date)
int terms_ (Length of service in # of terms, min 1, includes current term)

string non_de_plume_ (Writer's pen name for bylines)

assignment current_priority (Writer's main assignment–can be NULL/none)
assignment current_extra (Writer's extra assignment–can be NULL/none)
assignment current_emergency (Writer's overload assignment–most NULL/none)

1

(2) Create Data Structure (Vector, List, Stack, Queue, etc.)

Read in the file "NewsiesStaff.txt" provided, and create a data structure of Newsies.

Note: the file is formatted with an integer sentinel to signal the number of Newsies to be read in.

The format of each Newsie line is: firstname, lastname, GPA, IDnum, title, primary, secondary, tertiary, term_goal, term_kount, terms, non de plume. The supplied code is set up to read it as is, but you need to know which field is which. The variable names correspond, intuitively, to what you would expect.

Similarly, read in the "AssignmentEditorTxt.txt" file and build a data structure of assignment structs. Don't forget to set the assigned bool data field to 'false'. Now that I think of it, you might want to supply it with an assigned_Newsie field. Might make things a little easier.

You'll want to be able to walk up and down[1] both these data structures from end to end, so I recommend vectors.

(3) Assignment Desk

Glossographer Gompei is the assignment editor, the Old Goat. Gompei's job is to make sure that all the assignments get distributed to the writers for this week's edition.

This is the meat of the current assignment. (The computer science assignment.) Gompei's task is to make sure each prospective newspaper story is assigned to a writer. There are only two constraints:

First: No article can be assigned to a writer who does not work the corresponding desk. That is, Skye Svenson writes Entertainment, Sports, and Humor so must not be assigned a News story.

Second: No writer can take on more than three (3) stories at a time, a priority, an extra, and an emergency.

<div align="center">FULL STOP</div>

---

[1]Perhaps just be able to reset to the beginning to try another pass.

So that's all you need to do. Walk up and down your two vectors until all the stories have homes with corresponding writers.

FULL STOP

You think there should be more?

Is the task possible? What if, instead of 26 writers (as we have) and 42 well-distributed stories (as we have), there were 10 and 60, respectively? Clearly impossible. It shouldn't be hard here under our numbers, but under what conditions will it prove impossible?

Is it possible that you could start assigning stories and paint yourself into the proverbial corner. That is, if you give out all the News stories to people who also write Humor, might you end up without enough writers for those stories?

What about equity?

Should Old Goat Gompei distribute stories with a sense of fairness? Should everybody get a story before anybody gets a second? How would you implement that?

Should writers who have not completed their term's goal get stories before those writers who have fulfilled the term's requirements?

Should News writers get three News stories right away and then miss out on the Features and Humor pieces they also write? Note: Just because a writer has three categories of interest doesn't mean three different article categories must be assigned. Or does it?

Should a News, Features, and Humor writer get saddled with three Humor stories, or should be guarantee the first story to be the writer's primary interest?

We called one of the writers' slots "emergency". Why? Would it be a legitimate distribution of stories for Gompei to give a writer three stories while another writer–someone who could take one of those three–gets none?

In what order should the writers get their stories? Cub Reporters before Reporters? By seniority perhaps? Experienced Editors before Reporters or Reporters before busy Editors?

You don't have to do any of that. But think about it. How do the nature of our data and the way we have presented our data influence what can be done and what you think should be done?

These are important parts of the human activity of software development.

(4) Post this week's article assignments on the assignment board.

You should create two Newsie class member functions:

The first is: void print_weekly_rollcall(vector[2]<Newsie> all_writers)

For each writer, the console display should be:
first_ non_de_plume_ last_ title_:
     article workingtitle
    ⋮   ⋮   ⋮
If a writer has no assignment, "NONE" should be displayed:

So a possible start to the output might be:

Alex The_Goat Aaron Reporter:
     News Voter_Registration_Drives_Face_New_Challenges
     Editorials&Opinion Climate_Change:_Our_Future_Is_On_Fire
Bert The_Noob Barron Cub_Reporter:
     NONE
Chris The_Bozz Cartier Editor:
     Humor Caprine_Corner:_You_Have_GOAT_To_Be_KIDding_Me!
(And so on. . .)

Feel free to format it nicely–can you put quotation marks on the nicknames? "The_Bozz" instead of just The_Bozz"? Can you strip out the underscore to make it "The Bozz"? Unimportant! But feel free to give it a go.

You should also write:
void print_weekly_assignment_desk(vector[3]<assignment> all_assignments)[4]

For each assignment, the console display should be:
lastname_ title_ article workingtitle

---

[2]Whatever data structure you use–vectors will likely be simplest
[3]Whatever data structure you use–vectors will likely be simplest
[4]Does this one really need to be a Newsie member function?

If a story has no writer, UNASSIGNED should be display instead of last_ and title_.

So a possible start to the output might be:

Aaron Reporter News Voter_Registration_Drives_Face_New_Challenges
Aaron Reporter Editorials&Opinion Climate_Change:_Our_Future_Is_On_Fire
Cartier Editor Humor Caprine_Corner:_You_Have_GOAT_To_Be_KIDding_Me!
UNASSIGNED Sports Pawsox_to_Become_Woosox
(And so on. . .)

Again, feel free to make it pretty. Ooh! Perhaps an index as the first thing on the line?

(5) Evaluation

Gompie's supervisor will evaluate the report based on the following criteria:

Class Extension	Newsie Class and File I/O	25%
Data Structures	Vectors (?) Developed	25%
Assignments	Writers and Assignments Handled	25%
Reports	Working Print Functions	25%

(Good working code gets full credit.)