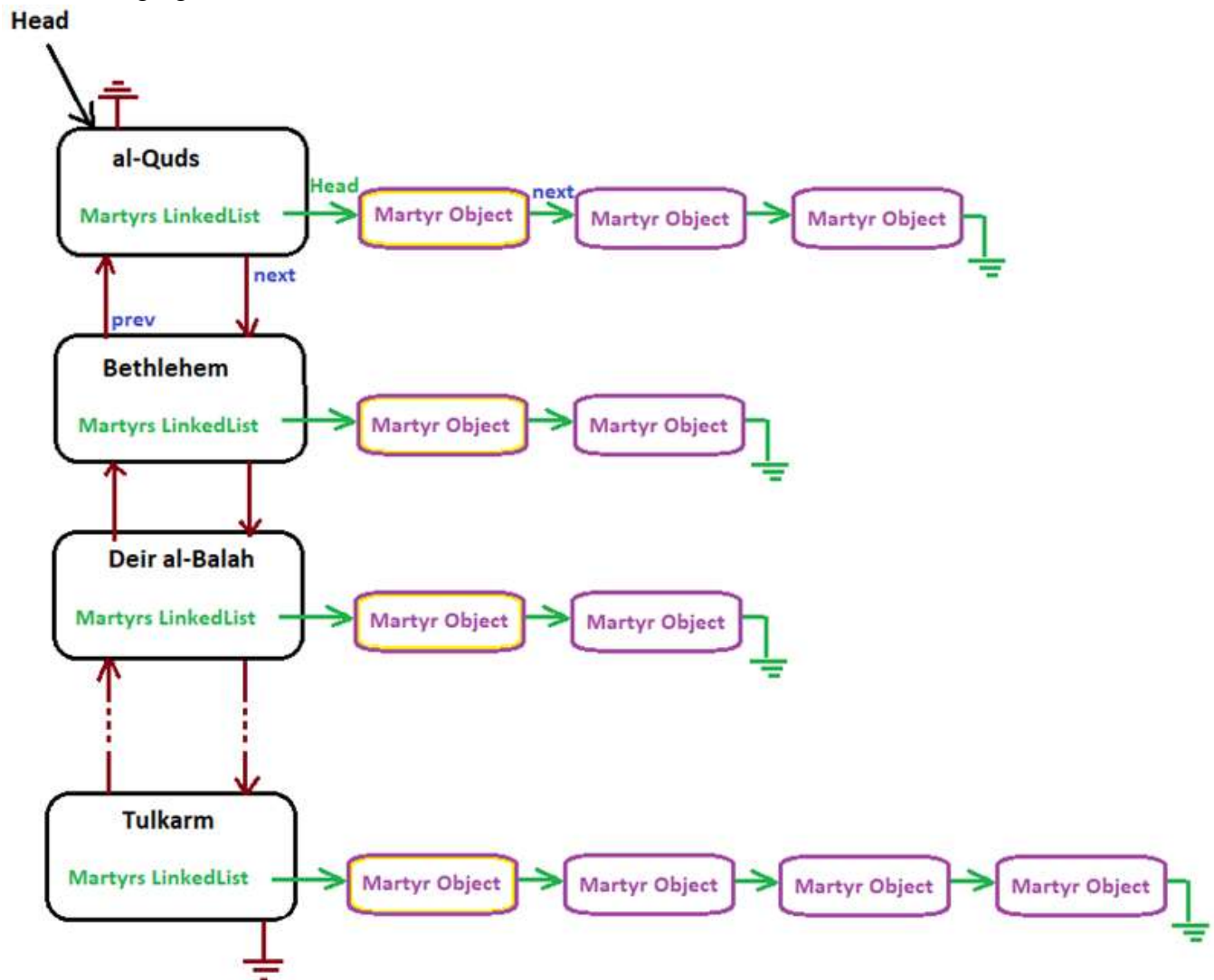


COMP242 Project I

In this project, you will implement a martyrs data structure using sorted doubly and single linked lists. The following figure shows the overall data structure:



- First you need to create a sorted single list to hold the martyr object information. Martyr information includes: **Name**, **Age**, **Date of death**, and **Gender**.
- The single linked list will be sorted by ***Date of death*** as a date.
- Then, you need to create a sorted doubly linked list that contains the ***location*** and a single list of martyr objects (created above).
- The doubly linked list will be sorted by ***location***.

The data input for this project will be a martyrs csv file (**btselem.csv** attached) from B'Tselem¹(note: this file is a normal text file; you can open it using notepad). Each line in this file contains a martyr record (**Name, Age, Event location – District, Date of death, Gender**) separated by comma (,).

YOU MAY NOT USE ARRAYS or ARRAYLIST IN THIS PROJECT.

For a good user experience, you will need to implement a graphical user interface (GUI) using javaFX.

YOU MAY NOT USE SCENE BUILDER IN THIS PROJECT.

At the beginng, the user has to load the martyrs file using a file chooser. Then the user will get a list of functions to choose from:

Location Screen [tab1]:

1. An option to insert new location record to the doubly linked list.
2. An option to update (update or delete) a location record.
3. An option to search for a location record and load the martyrs' records in that location. (Martyrs Screen [tab2])

Martyrs Screen [tab2]: after searching/selecting a **location**, the user can:

1. Insert a new martyr record to the single linked list.
2. Update/delete a martyr record.
3. Search for martyr record by part of his name.

Statistics Screen [tab3]: for the selected location from location screen [tab1], do

1. Generate a summary report that includes:
 - a. The numbers of martyrs by **age**
 - b. The number of martyrs by **gender**
 - c. The average age of martyrs
 - d. The date that has the maximum number of martyrs
2. Two buttons to navigate throw locations. A next button will generate a summary report of next location. A previous button will generate a summary report of previous location.

Save Screen [tab4]: in this screen, you will save the updated linked lists back to a file in the same format (**Name, Age, Event location – District, Date of death, Gender**) separated by comma (,)

Use a file chooser to select the folder to save the file in.

You have to study the time complexity of each function (above) and be ready to explain it during the discussion.

Good Luck!

¹ <https://www.btselem.org/statistics>