**Last Date for submission is June 15th, 2023.**

**Problem-Based Assignment (19-20-21SW)**

**Of**

**Data Structure and Algorithms**

**19-20-21SW Batch**

**Engr. Rafia Shaikh**

**Dataset:** Excel sheet is attached

Using the provided excel sheet of earthquake solve the below three listed problems.

**Problem 1:** Biggest Earthquakes between 2009 and 2013

Create a queue to store the biggest earthquake of each year.

Iterate over the yearly earthquake collections from 2009 to 2013 and find the earthquake with the highest magnitude for each year.

Enqueue the earthquake data (magnitude and country) into the queue.

**Problem 2:** Recent 5 Earthquakes from Each Country

Create a stack for each country to store earthquake data.

Traverse the yearly earthquake collections and push the earthquake data onto the corresponding country's stack.

Repeat this process for each country.

**Problem 3:** Most Recent Earthquakes above 6 Magnitude

Create a linked list to store the most recent earthquake from each country.

Traverse the country stacks and create a node in the linked list for each earthquake with a magnitude above 6.

Set the new node as the head of the linked list.

# Make the algorithm and code (GUI or command line for results) for the above mentioned problems.

**Rubric for problem-based learning assignment**

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| --- | --- | --- | --- | --- |
|  | **Good (2.5 marks)** | **Fair (1.5 mark)** | **Unsatisfactory (1 mark)** | **Not Submitted(0 mark)** |
| **Data Structure creation** | Demonstrates the ability to create data structures correctly. | Demonstrates a moderate level of ability to create data structures. | Not able to create data structures properly. | Not submitted |
| **Organization &**  **Structure of algorithms** | The algorithms are well organized in a tight and logical fashion. | The algorithms are partially organized in a logical fashion. | The algorithms are not well organized in a tight and logical fashion. | Not submitted |
| **Code Completeness** | Demonstrates an in- depth, high-level understanding of the problems with complete code. | Demonstrates a moderate level of understanding of the problems with some code. | Fails to demonstrate  an understanding of the problems and code. | Not submitted |
| **Result Accuracy** | The results presented are accurate. | The results presented are partially accurate. | The results are not in presentable form. | Not submitted |