CSE 112 Final

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I. QUESTION (15 POINTS)

Draw the UML diagram of the following problem. A daily **Newspaper** consists of a name, a set of **DisplayItem**'s and a set of **Author**'s.

Each **DisplayItem** has title, text, and number of reads and one abstract method **void display()**.

News is a type of **DisplayItem** which has a **Topic** (SCIENCE, POLITICS, ECONOMICS, SPORT) and an **Author**. **Article** is a type of **DisplayItem** which has a **Columnist** and a number of likes.

Each **Author** in the **Newspaper** has a name, surname, and salary. Each **Columnist** is a special type of **Author** which has a specialty on a **Topic**, and a number of followers.

Define attributes and constructors for these classes. Don't define any setters or getters.

II. QUESTION (23 POINTS)

Implement the classes **NewsPaper**, **DisplayItem**, **Author**, **Topic**, **Columnist**, **News**, **Article** according to your UML diagram.

III. QUESTION (12 POINTS)

Write a function **void addAuthors(String fileName)** in the class **NewsPaper**, which reads information about authors from a file and add them to the author list. The file format is as follows:

```
3
Oktay Eksi 1000
Ahmet Altan 1500
Ahmet Hakan 2000
```

IV. QUESTION (10 POINTS)

Write the function **void printAuthors(String fileName)** in the class **NewsPaper**, which prints information about authors to a file. The file format is the same as above.

V. QUESTION (10 POINTS)

Write the functions **double calculatePopularity()** in classes **Author** and **Columnist**. The popularity of the author is calculated as its salary / 1000. The popularity of the **Columnist** increases by

- 10000 / numberOfFollowers with respect to **Author** if the specialty of the **Columnist** is SCIENCE.
- 20000 / numberOfFollowers with respect to **Author** if the specialty of the **Columnist** is POLITICS.
- 30000 / numberOfFollowers with respect to **Author** if the specialty of the **Columnist** is ECONOMICS.
- 40000 / numberOfFollowers with respect to **Author** if the specialty of the **Columnist** is SPORT.

VI. QUESTION (15 POINTS)

Add the following functions to the class **Newspaper**:

- **sortDisplayItems()** to sort DisplayItems with respect to their number of reads.
- **sortAuthors()** to sort Authors with respect to their surname, if their surnames are equal to their names.

(Hint: Add appropriate compareTo functions)

VII. QUESTION (10 POINTS)

First add the exception class **WrongNumberOfReads** which displays an exception message if the number of reads is negative. Then write a setter for method for numberOfReads in the **DisplayItem** class and if the user enters a negative number, it will throw **WrongNumberOfReads**.

VIII. QUESTION (5 POINTS)

For the **double calculatePopularity()** in class **Columnist**, add division by zero exception handling message.