PROBLEM 1

Write a program that reads a paragraph of English text, and outputs useful data points. The list of useful data points is fixed.

Inputs to the program:

Format: JSON

paragraph: String – paragraph of English text.

Example:

{ **paragraph: "**John downloaded the Pokemon Go app on 07/15/2016. By 07/22/2016, he was on level 24. Initially, he was very happy with the app. However, he soon became very disappointed with the app because it was crashing very often. As soon as he reached level 24, he uninstalled the app."

}

Expected output:

Format: JSON

- **timeDuration: Int** – time duration in days (inclusive of the given dates). If unknown, then 0

- **gender: String** – "male", "female", or "unknown"

- **sentiment: String** – "positive", "negative", "mixed" or "unknown"
  Example: { timeDuration: 8, gender: "male", sentiment: "mixed" }

Example: {

timeDuration: 8,
gender: “male”,
sentiment: “mixed”
}

Example 1:

English paragraph:

“John downloaded the Pokemon Go app on 07/15/2016. By 07/22/2016, he was on level 24. Initially, he was very happy with the app. However, he soon became very disappointed with the app because it was crashing very often. As soon as he reached level 24, he uninstalled the app.”

Useful data points:

1. What **TimeDuration** (in **Number of Days**) does the text describe?

Answer: In the text, we see two dates 07/15/2016 and 07/22/2016. The time duration is **8** days (inclusive of the given dates).

2. What is the **Gender** (**male** or **female**) of the Person in the text?

Answer: Throughout the text, we see the pronoun “he”. The gender is **male**.

3.Does the text describe **positive**, **negative** or **mixed Sentiment**?

Answer: We see the Person is initially “happy”, and then “disappointed”. Treating “happy” as a positive sentiment, and “disappointed” as a negative sentiment, the text describes **mixed** sentiment overall.

Example 2:

English paragraph:

"Hua Min liked playing tennis. She first started playing on her 8th birthday - 07/07/1996. Playing tennis always made her happy. She won her first tournament on 08/12/2010. However, on 04/15/2015 when she was playing at the Flushing Meadows, she had a serious injury and had to retire from her tennis career."

Useful data points:

1. What **Time Duration** (in **Number of Days**) does the text describe?

Answer: In the text, we see three dates - *07/07/1996, 08/12/2010 and 04/15/2015*. Taking the earliest (*07/07/1996)* and latest (*04/15/2015)* dates, the time duration is **6857** days (inclusive of the given dates).

2. What is the **Gender** (**male** or **female**) of the Person in the text?

Answer: Throughout the text, we see the pronoun "she". The gender is **female**.

3. Does the text describe **positive**, **negative** or **mixed Sentiment**?

Answer: We see only the sentiment "happy" expressed in the text. The Sentiment is **positive**.

Hints:

Input:

{ **paragraph:** "Hua Min liked playing tennis. She first started playing

on her 8th birthday - 07/07/1996. Playing tennis always made her happy. She won her first tournament on 08/12/2010. However, on 04/15/2015 when she was playing at the Flushing Meadows, she had a serious injury and had to retire from her tennis career."

}

Output:

{ **timeDuration**: 6857,

gender: "female",

sentiment: "positive" }

For Time Duration, look only for dates of the format MM/DD/YYYY. For Gender, look for pronouns "he" and/or "she". For Sentiment, look for the following keywords:

- Positive sentiments: ○ Happy ○ Glad ○ Jubilant ○ Satisfied
- Negative sentiments: ○ Sad ○ Disappointed ○ Angry ○ Frustrated

Programming Language: Java or Scala

PROBLEM 2

Write Tests for Problem 1. Use any Framework/Tool of your choice to write the tests.

NOTE:

In the process of implementing the solutions, feel free to make any necessary assumptions, if not already explicitly specified in the Problems. Document all the assumptions made by the solutions.