**Final Exam**

As a big data engineer, you've received the following task - you need to build a REST service that will perform data processing by request. In this task you need to process events of users/players bets in various games. User/Player data stored in sql database and “Bet” events are stored in json files. Below you can see data structure example:

**user/player**

{

“id” : 1,

“name”: John,

“lastName”: Doe,

“countryOfOrigin”: USA,

“email”: [some@email.com](mailto:some@email.com)

}

**bet event**

{

“eventId”: 1234,

“eventTime”: “2020-01-13 17:18:55”,

“country”: US,

“currencyCode”: USD,

“userId”: 1,

“bet”: 11.23,

“gameName”: “poker”,

“win”: 100.5,

“onlineTimeSecs”: 3450

}

You can assume that data stored in db has the following possible values:

**Games:** "baccarat", "poker", "blackjack", "canasta", "cribbage", "faro", "monte", "rummy", "whist", "baccarat-demo", "poker-demo", "blackjack-demo", "canasta-demo", "cribbage-demo", "faro-demo", "monte-demo", "rummy-demo", "whist-demo"

**Countries:** “US”, “PL”, “DE”

**Currencies:** “USD”, “EUR”

* **For US users/players ignore games with “-demo” in their game name**
* **The currency can be USD or EUR. Convert all Bets to be in USD currency ( for simplicity use static EUR to USD 1.1 conversion rate)**

You are asked to develop following REST API endpoints:

1. GET suspicious activity for a time period. Enreach each suspicious activity with user/player personal data. To react to suspicious activity, you are asked to flag players that meet any of the following rules.
   1. User/Player made bets from different countries in the provided time period.
   2. Win/Bet ratio is higher than 1/10.
   3. User/Player online time is higher than 5 hours.
2. GET statistics for specific game by game name and time period.
   1. Calculate average, max and min bet for requested game in time period.
   2. Calculate average, max and min win for requested game in time period.
   3. Calculate average, max and min profit for requested game in time period.
3. GET statistics for all games by time period.
   1. Calculate average, max and min bet for requested game in time period.
   2. Calculate average, max and min win for requested game in time period.
   3. Calculate average, max and min profit for requested game in time period.