# Tech Challenge

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# Predict number of active players and make marketing recommendations

# Forecasting future players

- Model
  - AutoRegressive Integrated Moving Average (ARIMA)
  - ARIMA models consist of 3 terms

| **AR:** Autoregression<br>**p** | **I:** Integration<br>**d** | **MA:** Moving Average<br>**q** |
|---|---|---|

***The model 'explains' a given time series based on its own past values (its own lags and the lagged forecast errors)***

- **Input for the model**: *"Number of users per day"*
  - *Group distinct_id per date*

# Results

- The model results along with the statistics are presented in the jupyter notebook
- One of the challenges at this point is the limited amount of available data
  - The model is expected to get better as it gets trained with more data
- It would be advisable to experiment with more sophisticated models like neural networks or gradient boosting
- Another interesting approach for spotting trends is the cohort analysis
  - Measure the engagement of the customer

# Customer retention using cohort analysis

- Cohort analysis is a powerful tool used to measure customer engagement by assigning common attributes to ‘cohorts’ of users
- Cohort, a group of users who share something in common
  - In this case, a common first day of playing the game
- Helpful for understanding customer engagement
- The main idea is too see how many players ‘leak’ from period to period

# Marketing recommendations for retaining customers

- Reward loyal players for their participation
  - Give them extra points
- Building a forum around the community where players can interact
- Share exclusive analysis
- Keep interface simple and easy to use