

Dota 2 Statistics



CIS : 602 Special Topics
-Data Visualization

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Abstract

1) The main goal of our project is to provide visualization related to the popular game Dota 2.

2) We aim to provide the statistics of the game using a Choropleth Map Visualization, 3D Radar Chart Visualization and a stacked bar chart using tooltips.



A Choropleth Visualization

- Provide a visualization using the Live Datasets provided by Steam API.
- Target Gamer's game data and calculate the recent games that were recorded in different countries and show a visualization.
- While hovering over a country should provide observer with the detail of users playing in that particular country with the number of users.

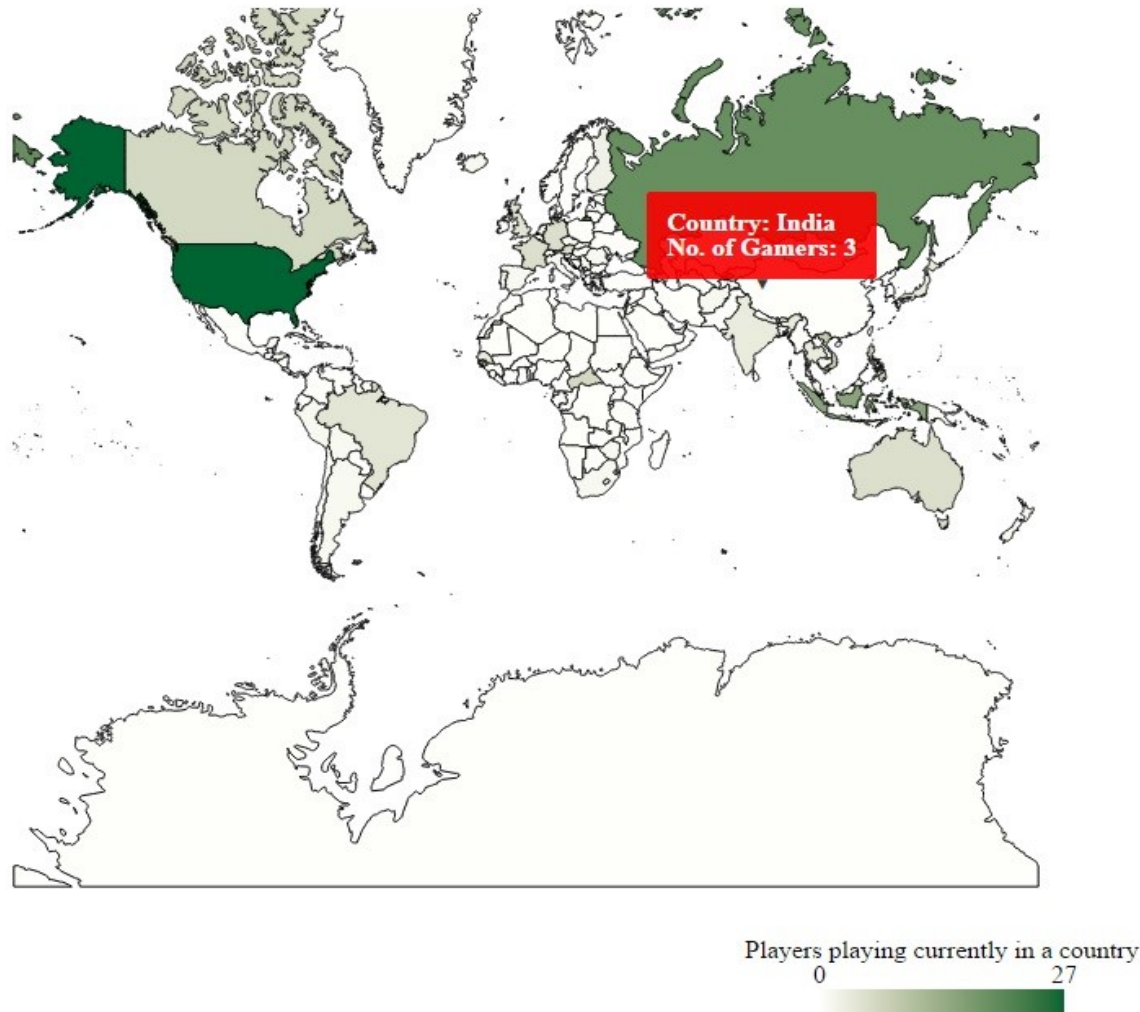
Choropleth visualization for the Recent Games played



Players playing currently in a country

0 5

Choropleth Visualization for Games recorded for a Day at different intervals



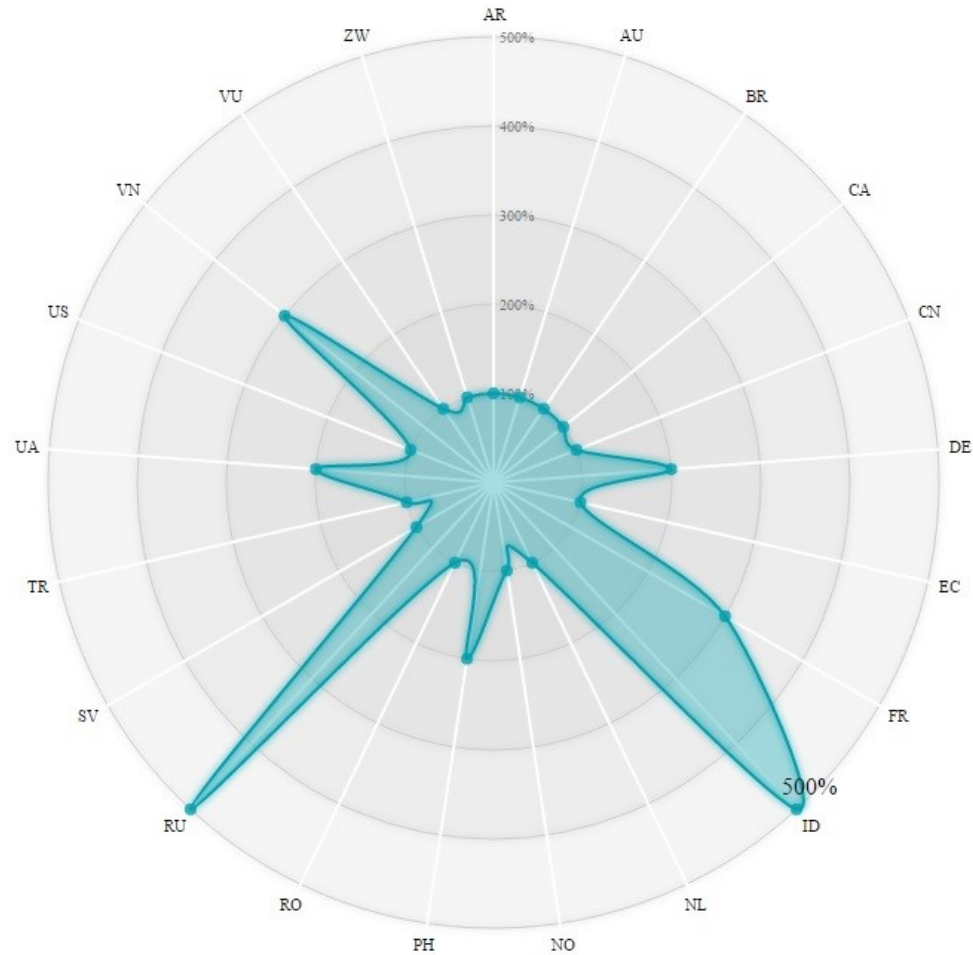
Data set Limitations while creating the Choropleth

- Users playing the game should set their game profile to **Public** in order for us to access their game & private details using the Steam API.
- **Incomplete** user profile details resulted in providing an inaccurate population detail of users playing in each country.
- Needed to use Asynchronous methods to access the database (e.g. Adding a delay)

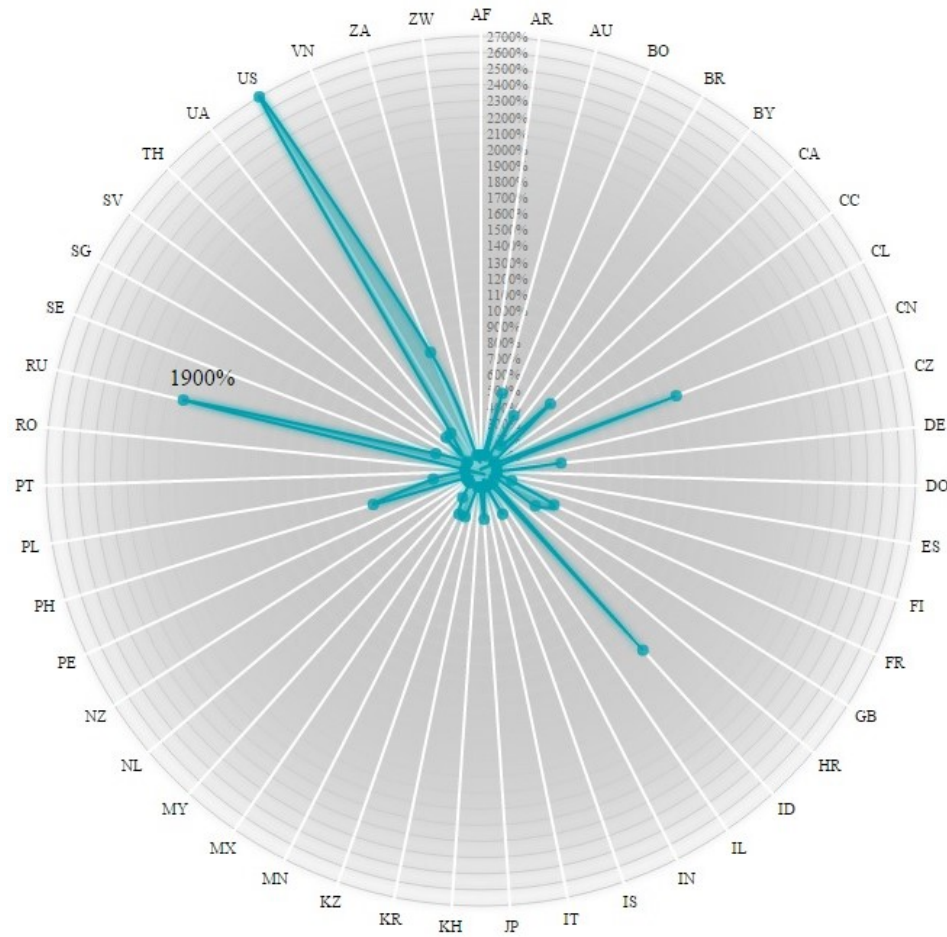
3D Radar Chart Visualization

- Our aim was to provide an in depth relative comparison of the countries in which the game is being played.
- The comparison helps in giving a better view and a specific understanding as to where the game is even more popular.
- Reference: <http://www.visualcinnamon.com/2015/10/different-look-d3-radar-chart.html>

3D Radar Chart for the Recent Games played



3D Radar Chart for Games recorded for a Day at different intervals



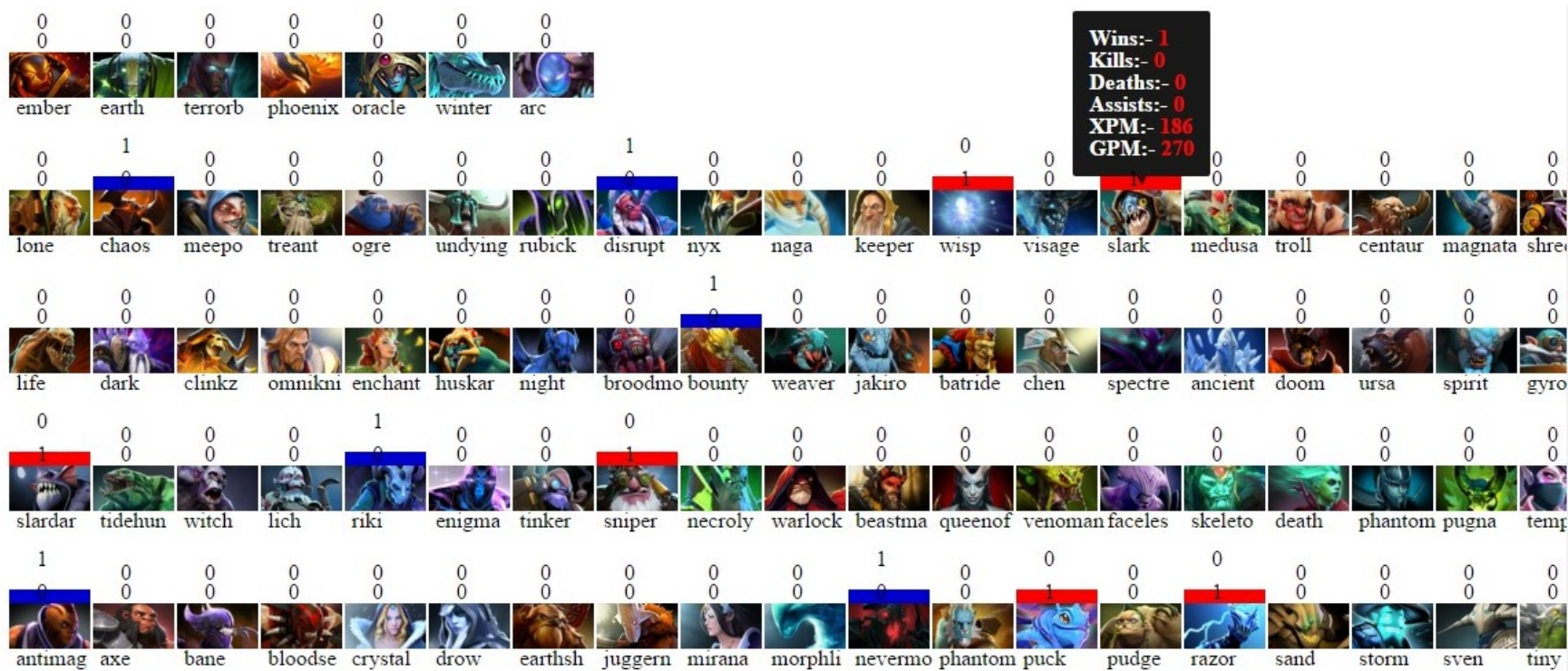
Why two different representations of Datasets?

- Current scenario and past data representation provides a proper insight for the observer to understand the development of the game.
- Was there an increase in the number of gamers in the country?
- Where is the game more popular after comparing past & current data?

Stacked Bar Chart Visualization to find the Hero trend & popularity

- Provide the latest trend of Hero's being **picked** by Players.
- Getting each Hero's personal **Win/Loss** total with other important details like GPM (Gold per minute), XPM (Experience per minute), etc.
- Top Most and Least most picked Heros by players.

Hero Trend providing details for each Hero and their statistics



Limitations and difficulties faced during accessing live data from Steam API

top	Preserve log
Array[17]	Hero (1).html:117
Array[111]	Hero (1).html:135
Array[111]	Hero (1).html:239
min_win = 0	Hero (1).html:254
max_win = 1	Hero (1).html:255
min_loss = 0	Hero (1).html:276
max_loss = 1	Hero (1).html:277
max_value = 1	Hero (1).html:287
✖	https://api.steampowered.com/IDOTA2Match_570/GetMatchDetails/v001/?key=3E11DA346FDD004A9848B5C028DED83B&match_id=2353319800 Failed to load resource: the server responded with a status of 503 (Service Unavailable)
✖	https://api.steampowered.com/IDOTA2Match_570/GetMatchDetails/v001/?key=3E11DA346FDD004A9848B5C028DED83B&match_id=2353319176 Failed to load resource: the server responded with a status of 503 (Service Unavailable)
✖	https://api.steampowered.com/IDOTA2Match_570/GetMatchDetails/v001/?key=3E11DA346FDD004A9848B5C028DED83B&match_id=2353320266 Failed to load resource: the server responded with a status of 503 (Service Unavailable)
✖	https://api.steampowered.com/IDOTA2Match_570/GetMatchDetails/v001/?key=3E11DA346FDD004A9848B5C028DED83B&match_id=2353319852 Failed to load resource: the server responded with a status of 503 (Service Unavailable)
✖	https://api.steampowered.com/IDOTA2Match_570/GetMatchDetails/v001/?key=3E11DA346FDD004A9848B5C028DED83B&match_id=2353316263 Failed to load resource: the server responded with a status of 503 (Service Unavailable)
✖	https://api.steampowered.com/IDOTA2Match_570/GetMatchDetails/v001/?key=3E11DA346FDD004A9848B5C028DED83B&match_id=2353315459 Failed to load resource: the server responded with a status of 503 (Service Unavailable)
✖	https://api.steampowered.com/IDOTA2Match_570/GetMatchDetails/v001/?key=3E11DA346FDD004A9848B5C028DED83B&match_id=2353316737 Failed to load resource: the server responded with a status of 503 (Service Unavailable)
✖	https://api.steampowered.com/IDOTA2Match_570/GetMatchDetails/v001/?key=3E11DA346FDD004A9848B5C028DED83B&match_id=2353315465 Failed to load resource: the server responded with a status of 503 (Service Unavailable)

Steam API Servers crashed

```
{
  "result": {
    "players": [
      {
        "account_id": 4294967295,
        "player_slot": 0,
        "hero_id": 8,
        "item_0": 40,
        "item_1": 34,
        "item_2": 212,
        "item_3": 0,
        "item_4": 237,
        "item_5": 237,
        "kills": 2,
        "deaths": 0,
        "assists": 0,
        "leaver_status": 0,
        "last_hits": 7,
        "denies": 3,
        "gold_per_min": 312,
        "xp_per_min": 445,
        "level": 6,
        "gold": 698,
        "gold_spent": 1640,
        "hero_damage": 1560,
        "tower_damage": 0,
        "hero_healing": 0,
        "ability_upgrades": [
          {
            "ability": 5028,
            "time": 161,
            "level": 1
          },
          {
            "ability": 5027,
            "time": 218,
            "level": 2
          },
          {
            "ability": 5028,
            "time": 270,
            "level": 3
          },
          {
            "ability": 5002,
            "time": 312,
            "level": 4
          }
        ]
      }
    ]
  }
}
```

Data Set of the Match_id = 2353319800

Limitations and Difficulties (Continued)

- Calling more number of requests to the Steam API server caused heavy load on the servers resulting in issues with the data retrieval process from the steam database.

What observer can derive or can infer from the visualizations?

- Where is the game most played both currently and during a phase of time?
- Was the game successful in gaining interests of players in a particular country to play it?
- What is the current Trend in picking up Hero by players all over the globe?
- Which Hero has the most Win or loss?
- A Hero maybe amongst the most popular picks, but may have more number of losses compared to wins. Why?
- Hero maybe picked more because its more Fun to play.
Probable answer for the above question.
- You can infer the probable causes for a hero's loss or win based on hero's stats like XPM & GPM.

More Implementations that could have been done?

- Create Hero Icons and Hero Details in the tooltip itself while hovering the Bar Chart making the bar chart a bit compact.
- Create a line chart or bar chart inside a tooltip when hovering over the stacked bar chart.

Thank You

Questions?