

ECOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

DATA VISUALIZATION  
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## ESports Earings Visualization

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# 1 Introduction and Motivation

## 1.1 Motivation

The eSports sector has grown in recent years, with an increase in the number of people watching these games each year. Professional eSports players and video game streamers have become a lucrative career option.

People, on the other hand, rarely have an intuitive comprehension of e-sports professionals' earnings. We want to use data exploration and analysis to determine what the most popular games are right now, as well as to interactively show individual and team earnings. We believe that our visualization will assist novice and experienced gamers in determining which game to learn first or next based on popularity, as well as which region is more promising based on average wage.

## 1.2 Introduction

In this project, we want to show the diversity and popularity of esports in an interactive manner. Our website's main purpose is to display the earnings of eSports players and teams from various nations in 10 prominent games such as Dota2, Fortnite, League of Legends, and so on. We believe that our website will provide a comprehensive overview of the subject while also delighting the audience through engaging interactions. We will specifically depict which games are popular, which players and teams earn the most, and which regions are more prospective for eSports development.

# 2 Exploratory Dataset Analysis

## 2.1 Dataset

The dataset shows [eSports earnings](#), and it was taken from Kaggle. It collects data on the profits of eSports players and teams from across the world. The dataset contains around 2000 records, which correspond to detailed revenues of eSports individuals and teams from diverse nations and regions in 10 games across five genres.

We found no out-of-range numerical values or digital gibberish in-text characteristics in the dataset. It's ready to start exploring and visualizing data.

## 2.2 Exploratory Data Analysis

Our data exploratory analysis and visualization are primarily centered on the perspectives of teams, players, and countries/continents, resulting in the following conclusions.

- **From the game point of view:** The most tournaments are held for Starcraft II, followed by CSGO, Dota 2, and League of Legends. While Dota 2 is the most well-paid game, with over three times the revenues of the second most well-paid game (CSGO). While MOBO wins the most total USD prizes and has the best individual median earnings, CSGO has the highest median earnings. It's also worth noting that MOBA games have the most competition among the dataset's competitors.

- **From the player point of view:** Korea, China, and the United States of America have the most esports players. The majority of the highest-earning players in each game are from Asia and Europe, with the exception of Fortnite, which has a player from North America. Players' incomes differ significantly from those of teams. Although MOBA still has the greatest total USD prize, FPS has the best median earnings.

- **From countrycontinent point of view:** China has the highest amount of ESports profits among countries. In terms of total income, Asia and Europe primarily dominate the continent. ESports participation is much larger in countries like China and Korea, resulting in higher overall revenues. Because Parkistan and other less developed nations are less receptive of ESports culture, it takes a lot of talent to get into it, which explains the higher median wages. Some of the nations with a smaller player count have "elite" players, whilst popular countries have a large number of players.

## 3 Design and Implementation

### 3.1 Initial Design

- **1. Navigator scene:** The first section will work as the home page. There is a navigator that we can use to move to the next section of our visualization by clicking on it. The title of our project and an image are located beneath the navigator.
- **2. Game scene:** This scene is an interactive part focused on all 10 games. When the audience enters the second scene, logos of 10 video games will emerge in a line. The audience can drag the icon to view all the games and get a brief introduction of the game by double-clicking its logo.
- **3. Player scene:** The purpose of this section, in Figure.6, is to display the highest-earning player and team in the top five games. Each of the five games will have its own logo bar on the right. The player and team with the most points in this game will appear in the left zone when the audience clicks on the game logo.
- **4. Map scene:** There is a representation of a globe map like Figure.4 in the last scene. By selecting a region, the average salary for that continent and country will be displayed. We can infer the global earnings distribution from the color of each region.

### 3.2 Challenges and Changes

One of the problems we encountered was that when we tried to import json data using ajax, the async value was not set to false. At this time, the request was asynchronous, resulting in an undefined error when we wanted to call the json data later. When we set the async value to true, the problem was solved successfully.

Another problem is that the data set we started with is not very large and lacks time-related information, so we later found a more detailed data set on e-sports revenue on the Internet.

### 3.3 Final Implementation

As above mentioned, some of the original design do not have good visual performance. We optimize the design and implement the visualization as below:

**Navigator scene:** This part is the start of the visualization as shown in Fig.1. We use a nice poster as background and add a start button. On the top of the page, there is a navigation bar that we can use to move smoothly to the sections of our visualization by clicking. As we move forward, the navigation bar will change its transparency and slide to the edge of the page. You can also click the 'Explore Now' button to the next scene.



Figure 1: Navigator scene

**Game scene:** This interactive part in Fig.2 is centered on the introduction of all ten games. When the audience enters the second scene, a line of ten video game logos will appear. The audience may drag the icon to see all of the games, and click logo to see the details about the game. At the same time, the theme song of the game will be played.

**Player scene:** The goal of this section shown in Fig.3, is to show the individual and team who earn the most money in the five most popular games. On the right, there is a logo bar for the five games. Initially the logo is gray. When the audience clicks on the game logo, it will be colorized and the playerteam with the highest revenue in this game will appear in the left zone. Below the photo of the player and the team logo, we also show the most famous saying of the player.

**Map scene:** To illustrate the global earnings distribution by countries and

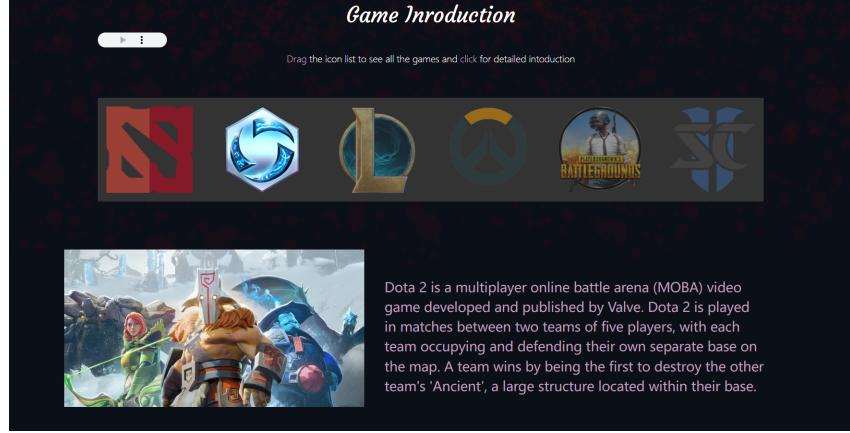


Figure 2: Game scene



Figure 3: Team scene

regions, we design this map scene in Fig.4. By hovering the mouse on a region in the map, the totally salary for that area will be displayed. Here we design the color space from white to red. The deeper the color, the higher the salary.

**Chart scene:** Finally, we add another scene to show the overall revenue changes over the time in Fig.5. By choosing game from the button on the top left. We can see how the total income changes by time for each game.

## 4 Peer Assessment

In this project, our team members cooperate and brainstorms for each milestone. We first discuss and reach consensus on goals and expectations. After that, we will use the 'divided and conquer' strategy. We split the work and

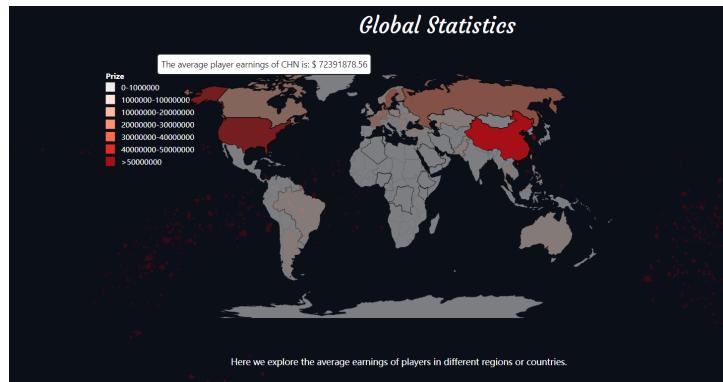


Figure 4: Map scene



Figure 5: chart scene

allocate tasks according to the advantages of each member. When we meet difficulties in the process, we will meet and work together to solve the problem.

#### 4.1 Li Shanci

- M1: Related work search
- M2: Initialize the website
- M3: interactive visualization design and report

#### 4.2 Luo Ruizhi

- M1: Dataset and Problematic statement
- M2: Website material collection and writing the report
- M3: Data integration and UI design

### **4.3 Yu Aibin**

M1: Exploratory Data Analysis

M2: Further data analysis and writing the report

M3: Map section and screencast