

# PROJECT ANALYSIS

## E-SPORTS EARNING

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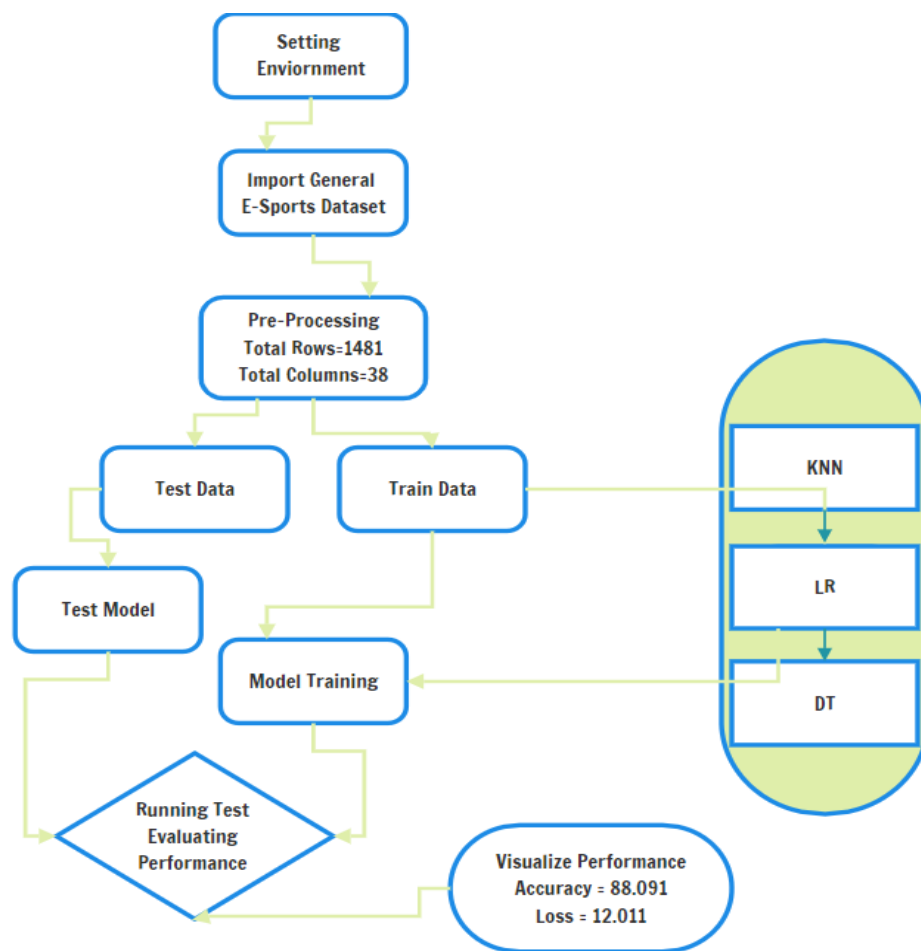
**ABSTRACT:** This dataset analyzes the income of the players involved in E-Sports Community, nowadays the E-Sports Community is touching the sky level, due to COVID-19, the E-Sports industry saw an extreme demand and spike in the viewership and the number of players around the globe. All the online games saw a surge in their daily active players. In the given *Dataset*, we have gathered the data from the online streaming platforms such as Twitch, YouTube, and we have also gathered reports from websites which keeps a closer look in this industry etc.

**INTRODUCTION:** In this Dataset, the main emphasize is on the earning of the players of E-Sports Community, through this dataset we can determine how much a player can earn by playing online games. E-Sports was a slow growing community before COVID-19, but as COVID-19 happened and lockdown begins the major E-Sports games such as PUBG, Valorant, Free-Fire, etc. saw a surge in the incoming new players and increasing the demand of games. E-Sports viewership numbers have been climbing steadily. In 2021, the global E-Sports audience was estimated at over 474 million, with expectations to grow to 577 million by 2025. Major tournaments can attract millions of concurrent viewers, rivaling traditional sports events. Online games are a great way to release the stress and anxiety, many players play games to reduce their stress and to spend some quality time with their teammates around the globe. We have gathered a lot if data of players who are currently earning way more than the job they had, this E-Sports Community have made a lot of people confident and famous at the same time resulting in the participation of different games and events. Mainly the data is derived from the online streaming platforms and from the players themselves. The global E-Sports market has seen substantial revenue growth year-over-year. According to market research, the industry's revenue reached approximately \$1.1 billion in 2020 and is projected to exceed \$2.8 billion by 2025. This growth is driven by various revenue streams, including sponsorships, media rights, merchandise, ticket sales, and game publisher fees.

**METHODOLOGY:** In this Dataset, mainly the method of analyzing the source from which they can predict the exact values, they have done surveys from around the globe from different online streaming platforms and from tournaments etc. Online streaming platforms registered many new streamers which never had played or hosted any game before COVID-19 but as COVID-19 happened many new players registered and started streaming games and later after some time they started to host online tournaments. During the tournaments we calculated how many players earn from playing those tournaments and championships etc. All the major games host World Championships which include players from all over the world resulting in the bigger prize.



## FLOWCHART:



**DATA PREPROCESSING:** First the dataset was cleaned by removing unwanted columns with missing values. Then, we checked the info of data that how many columns have null values, then replaced those missing values with random values according to column's datatype. Then we changed the datatype of columns to make data more reliable

### **Model Selection and Implementation:**

1. **Logistic Regression:** It is a fundamental classification technique that models the probability of a class based on input features. For multi-class tasks like digit recognition, it is extended using methods like softmax regression. It is simple, efficient, and serves as a strong baseline.
2. **K-Nearest Neighbors (KNN):** KNN classifies data points based on the majority class of their nearest neighbors. It is non- parametric and straightforward.
3. **Random Forests:** It is an ensemble method that constructs multiple decision trees and aggregates their predictions to improve accuracy and robustness.

### **LITERATURE REVIEW:**

**Introduction:** E-Sports, or electronic sports, represents the competitive aspect of video gaming, which has rapidly evolved into a global phenomenon. Research in E-Sports spans a multitude of academic disciplines, reflecting its complex and multifaceted nature. The industry's expansion has been significantly bolstered by technological advancements, particularly in digital streaming and online communities, which have facilitated global participation and viewership.

**Media Studies and Online Streaming:** A substantial body of research within media studies has focused on the technological and communal aspects of E-Sports. According to Reitman et al. (2019), E-Sports operates within a digital landscape supported by both online streaming and physical tournaments. Media studies have extensively explored qualitative feedback and community engagement among E-Sports athletes, emphasizing the role of spectatorship and consumer behavior within the industry. However, gaps remain in understanding the nuances of player-fan relationships and the utilization of social media by E-Sports athletes, particularly regarding gender differences in engagement.

**Historical Context and Evolution:** The history of E-Sports dates back to the late 1950s with the creation of "Tennis for Two," the world's first video game (Migliore, 2021). Significant milestones include the introduction of "Pong" by Atari in 1972 and the establishment of major video game competitions in the 1980s. The 1990s and early 2000s saw rapid advancements with companies like Sega, Nintendo, PlayStation, and Xbox driving the industry forward. The 1997 Red Annihilation event is often cited as the first

major E-Sports tournament, marking the beginning of organized competitive gaming on a large scale.

**Growth and Financial Aspects:** The E-Sports industry has seen exponential growth in both participation and financial stakes. Tournaments like Dota 2's "The International" boast prize pools exceeding \$40 million, underscoring the financial potential of competitive gaming (Prize Tracker, 2023). Additionally, the distinction between E-Sports content creators and competitive player's highlights varied pathways to financial success within the industry. While top players like Johan Sundstein have amassed substantial earnings from tournament play, influencers like Pokimane leverage their streaming platforms to achieve significant net worth through sponsorships and community engagement (Boss Net Worth, 2023; Brown, 2023).

**Academic Research and Business Perspectives:** Despite the burgeoning interest in E-Sports, scholarly examination from a business perspective remains limited. Cabeza-Ramírez et al. (2021) highlighted the sparse academic literature on E-Sports management and business strategies. This gap underscores the need for more comprehensive studies exploring the economic and managerial dimensions of E-Sports, particularly in the context of its rapid evolution and market dynamics.

**Conclusion:** E-Sports represents a dynamic and rapidly evolving industry, with substantial growth driven by technological advancements and global connectivity. While research has extensively covered media studies and the historical evolution of E-Sports, significant gaps remain in understanding the business aspects and the impact of social media engagement. The COVID-19 pandemic further accelerated the industry's growth, highlighting the importance of community and social identity in E-Sports consumption. Future research should aim to address these gaps, providing a holistic understanding of E-Sports from both an academic and business perspective.

#### **PERFORMANCE COMPARISON:**

	Logistic Regression	KNN	DECISION TREE
Accuracy	0.592	0.618	0.807
Log Loss	0.818	3.710	6.931
Precision	0.581	0.604	0.805
F1 Score	0.574	0.601	0.803

## **RESULTS:**

### **KNN:**

```
K-Nearest Neighbors': {'Accuracy': 0.6,  
'F1 Score': 0.6014755684567006,  
'Precision': 0.604628251079864,  
'Log Loss': 3.7103248990744264}}
```

### **DECISION TREE:**

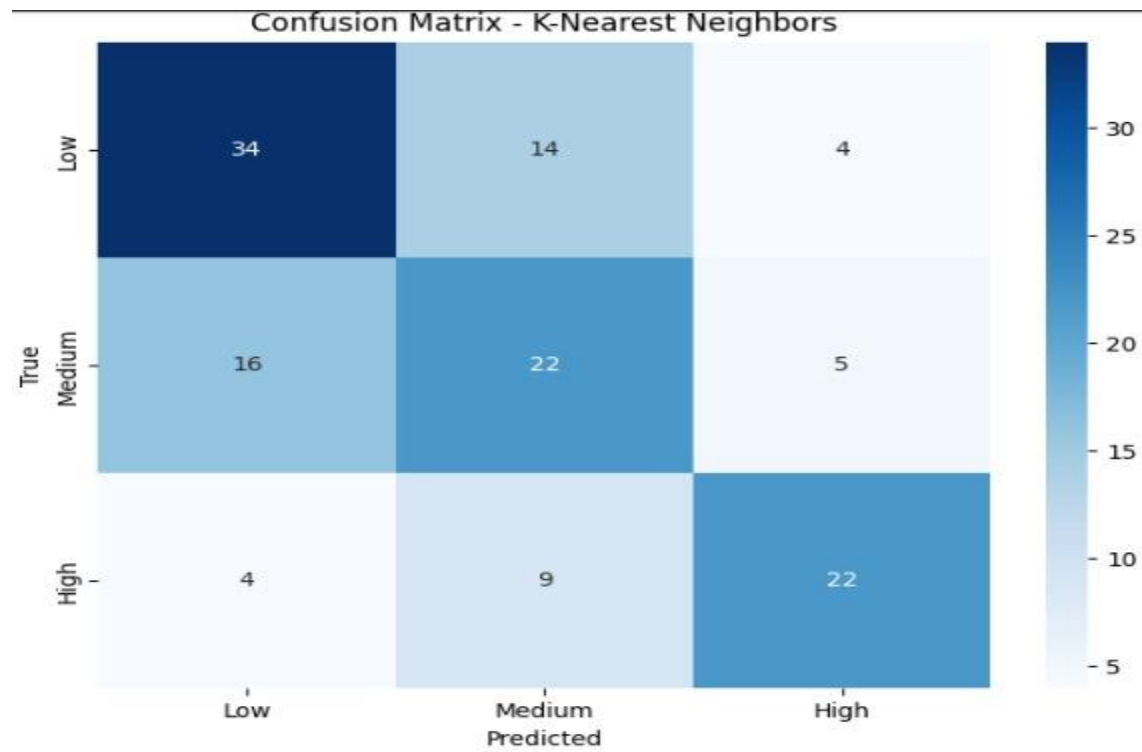
```
'Decision Tree': {'Accuracy': 0.8076923076923077,  
'F1 Score': 0.803835559393238,  
'Precision': 0.8059829059829059,  
'Log Loss': 6.931471805599452},
```

### **LOGISTIC REGRESSION:**

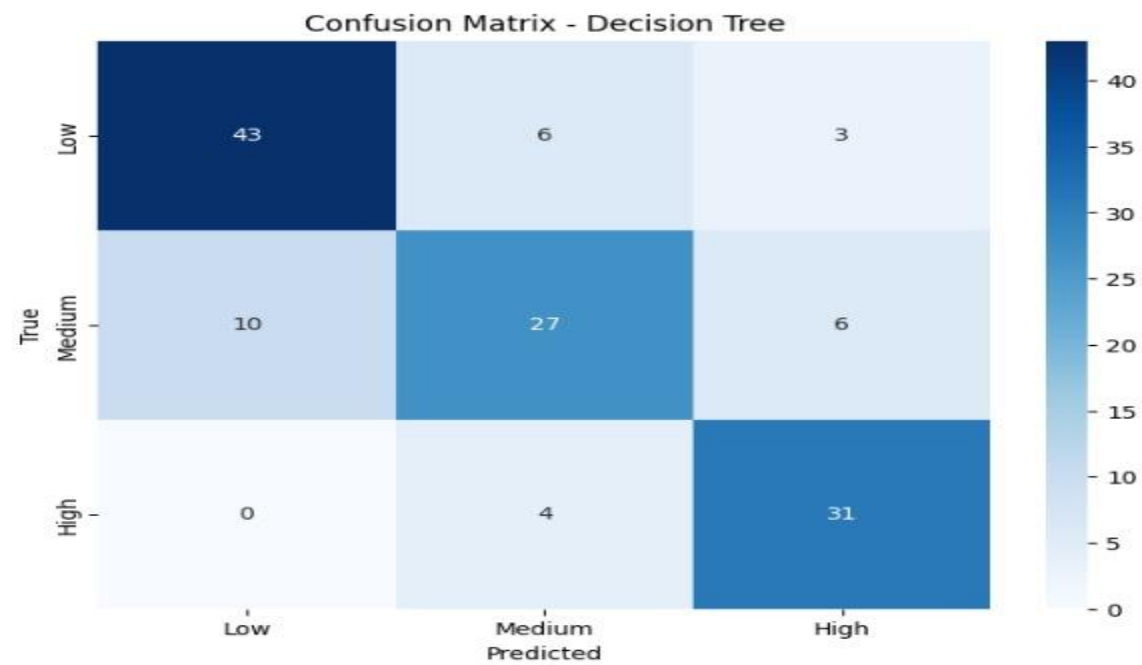
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Logistic Regression': {'Accuracy': 0.5923076923076923,  
'F1 Score': 0.5749851618069621,  
'Precision': 0.581307769656186,  
'Log Loss': 0.8183926808726709},
```

## CONFUSION MATRIX:

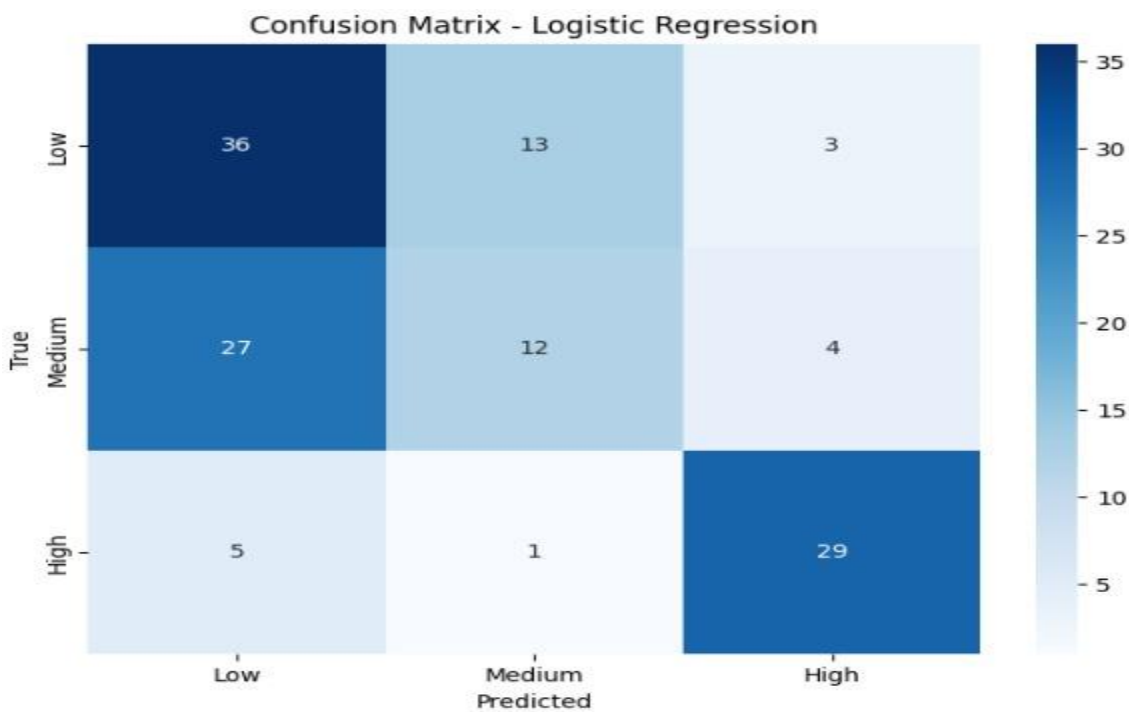
### KNN:



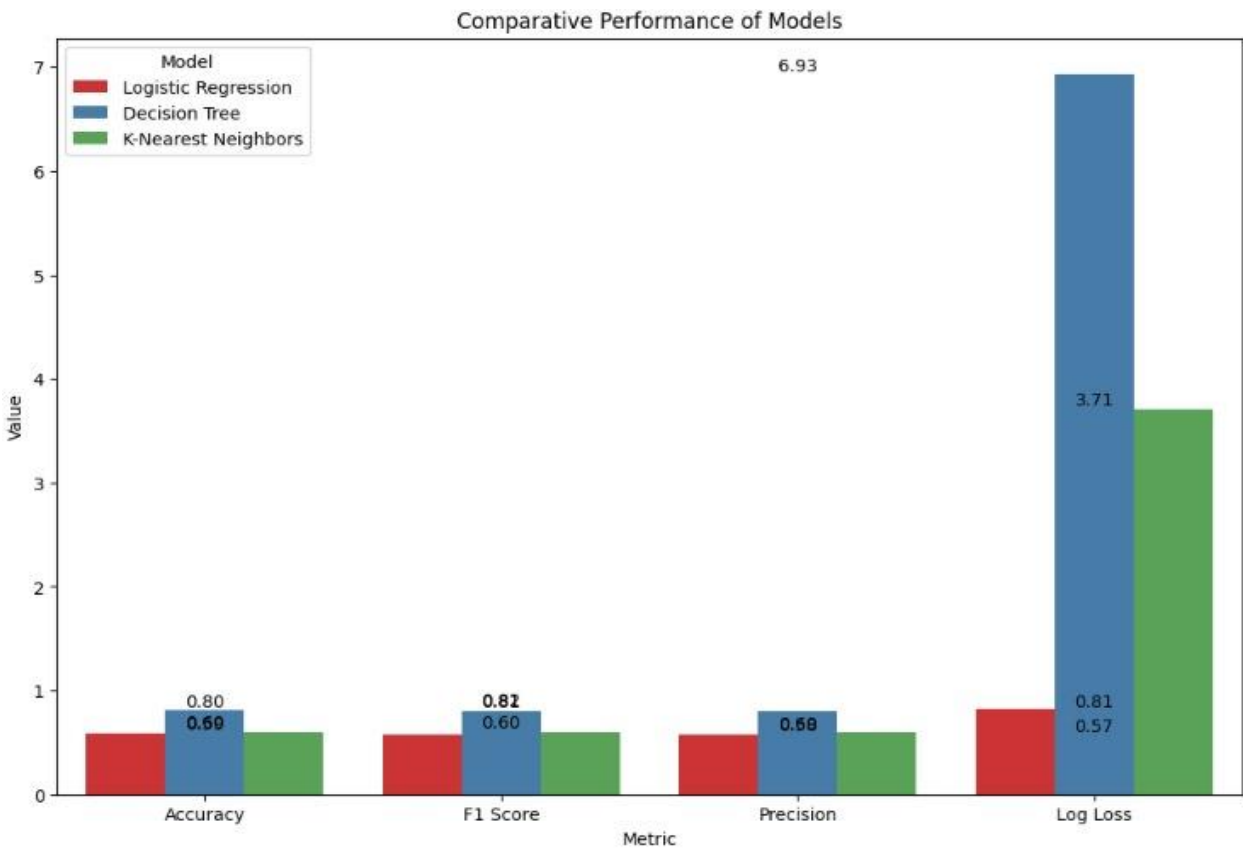
### DECISION TREE:



LOGISTIC REGRESSION:



COMPARITIVE ANALYSIS:





## REFERECES:

1. Reitman, J., Anderson-Coto, M. J., Wu, M., Lee, J. S., & Steinkuehler, C. (2019). Esports Research: A Literature Review. *Games and Culture*, 14(8), 825-849.
2. Migliore, G. (2021). The History of Video Games. Brookhaven National Laboratory.
3. Rogers, S. (2019). The Birth of Video Games. *Journal of Gaming Studies*.
4. Loguidice, B. (2009). *Vintage Games: An Insider Look at the History of Grand Theft Auto, Super Mario, and the Most Influential Games of All Time*. Focal Press.
5. Consolazio, D. (2018). The International Dota 2 Championships: A Historical Overview. *Esports Observer*.
6. Prize Tracker. (2023). Top E-Sports Prize Pools. Retrieved from [www.prizetracker.com](http://www.prizetracker.com).
7. Boss Net Worth. (2023). Johan Sundstein's Net Worth. Retrieved from [www.bossnetworth.com](http://www.bossnetworth.com).
8. Brown, T. (2023). The Financial Success of Pokimane. *Financial Analysts Journal*.
9. Cabeza-Ramírez, L. J., et al. (2021). Scholarly Research on Esports: A Meta-Analysis. *Journal of Business Research*.
10. Newzoo. (2021). Esports Viewership Trends. Newzoo Report.
11. ChatGPT