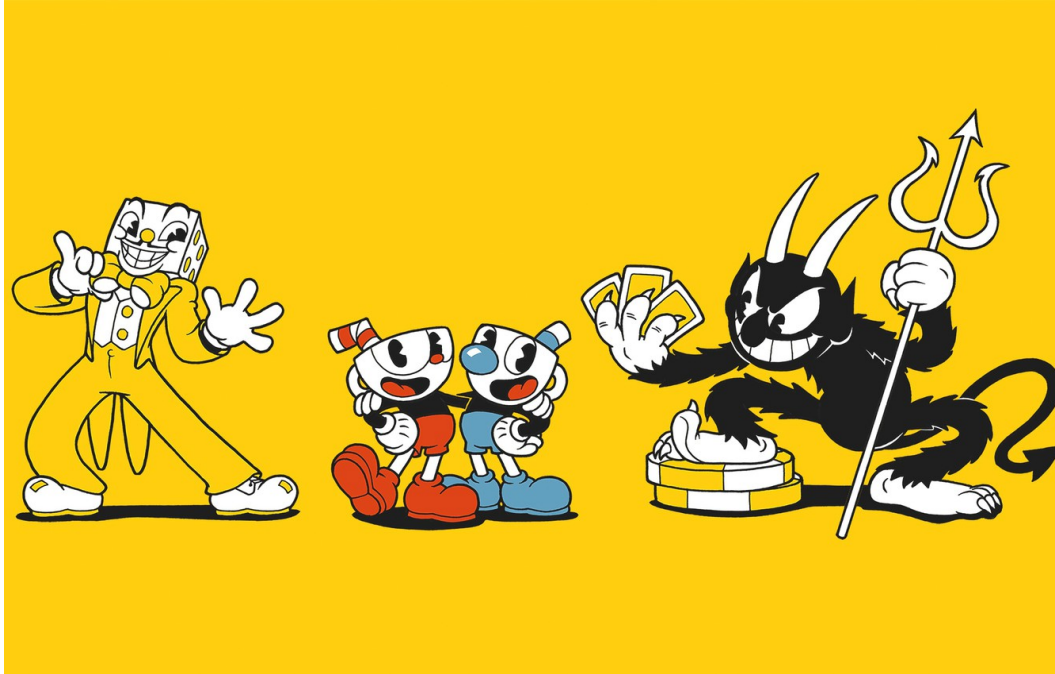


# Playing Games for "Research Purposes"



## Team members

1. Ashwin Rao - 2019101049
2. Kunwar Shanjeet Singh Grover - 2019101059
3. Pulak Malhotra - 2019101050
4. Alapan Chaudhuri - 2019111023
5. Shreyas Pradhan - 2019113004
6. Kushagra Garg - 2019113020
7. Manasvi Vaidyula - 2019101012
8. Hrishi Narayanan - 2019113022
9. Zeeshan Ahmed - 2019111024

# Introduction

We are focusing on a part of Algorithms that deals with the complexity classes of real-life problems that are mathematically modeled. We plan on analyzing real-world problems starting with a game, and modeling it mathematically, and then classify it under a complexity class. If the time permits, we will also try it for other real-world problems.

## Aim

- To achieve a better understanding of Complexity Theory.
- To learn how to mathematically model real world problems.
- To understand reduction proofs.

## Plan of Action

- Studying different complexity classes and papers dealing with the classification of real-world problems into the same.
- Studying different reduction proofs such as the set of Karp's 21 NP-Complete problems.
- Studying Erik Demaine's work ([example](#)) on classifying games into different complexity classes.
- Select some video games which haven't been classified into any complexity classes and try to classify them.
- If time permits, try to classify some other real-world problems into complexity classes.

## Results

- A study of reduction proofs of video games (What makes a video game NP-complete)
- A dissertation on the proofs on reduction of the video game that will be classified.