
2 PLAYER REACTOR

A Multiplayer Game to test your reaction spontaneity.

Youtube Link: <https://www.youtube.com/watch?v=-HGZS8fvaYA&feature=youtu.be>



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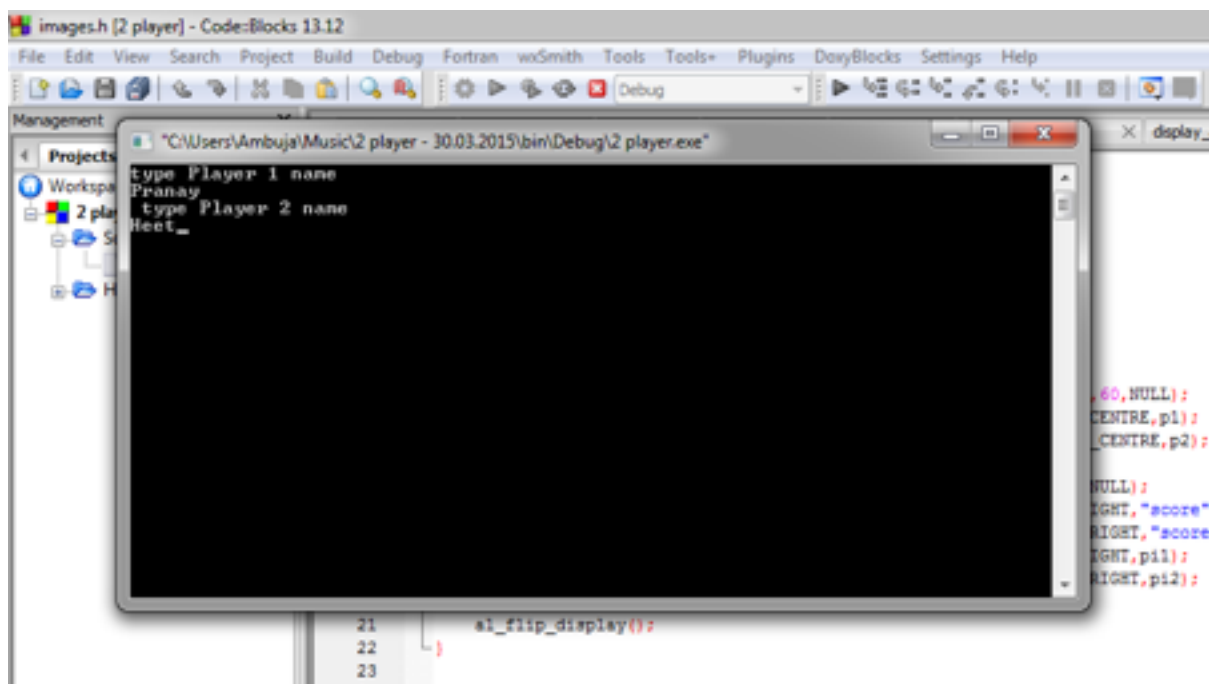
Introduction

2 player reactor is a multiplayer competitive game to test how fast the players can react to different questions and instructions.

GAME STRUCTURE:

There are eight different challenges. Each game will have 6 different sets of questions to which the players must react.

PLAYER DESCRIPTION:



It takes input of the name of player 1 and player 2. Then it increases the point of the player who reacted first for every correct answer and

decreases for every wrong answer. It displays the name of winner of the game at the end.

PRODUCT FUNCTIONS:

The product has stored rounds of game. The player can use custom game options to select the challenges they want to include or else the quick game option will produce random set of challenges.

The user clicks a specific key to react to the questions. Each player would be allotted a specific key to press.

Player 1 reacts with 'Y' key on the keyboard.

Player 2 reacts with 'P' key on the keyboard.

After each response it would be displayed whether the given answer was correct and the score of the players would change accordingly.

PROBLEM STATEMENT

2 Player Reactor is a game, which tests the players' reactions and logic under a competition based environment.

GOAL 1

To create a graphics based interface, using Allegro which would involve various mini - games.

GOAL 2

To take input from users, within a specified time limit.

GOAL 3

To update the scores of the two players based on their reactions.

REQUIREMENTS

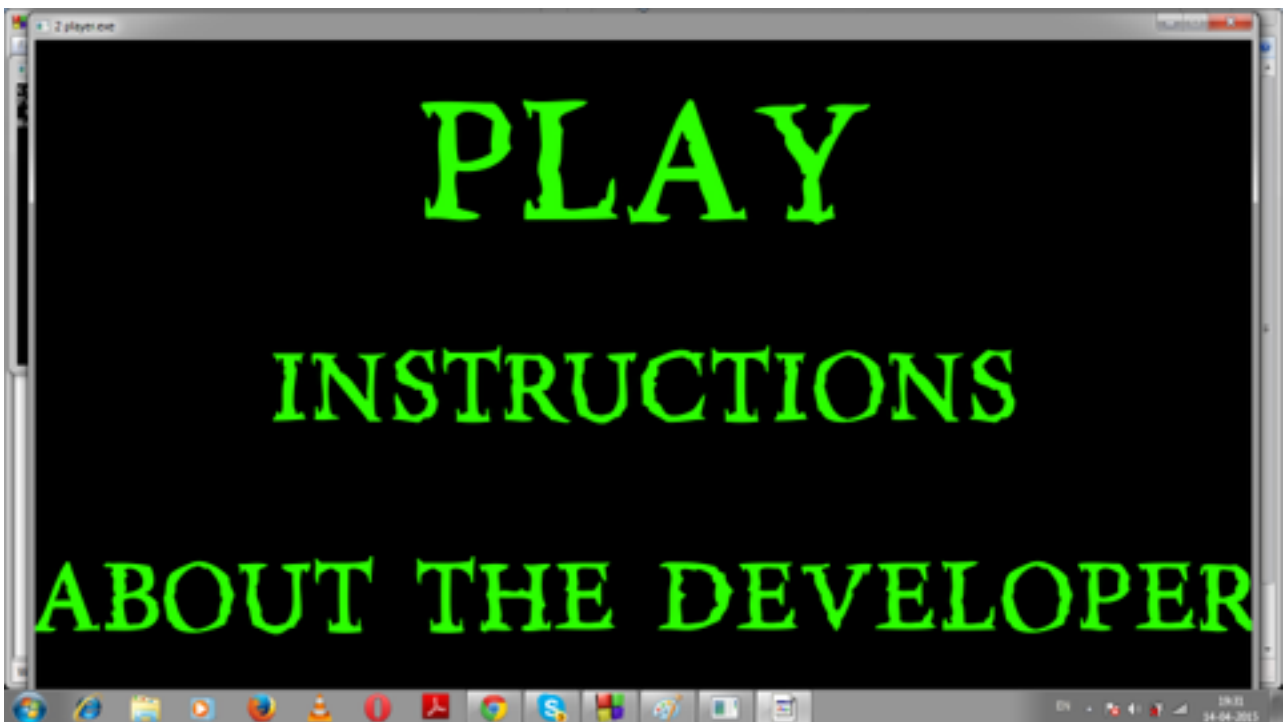
Operating System: Windows 7 or later.

How to Run:

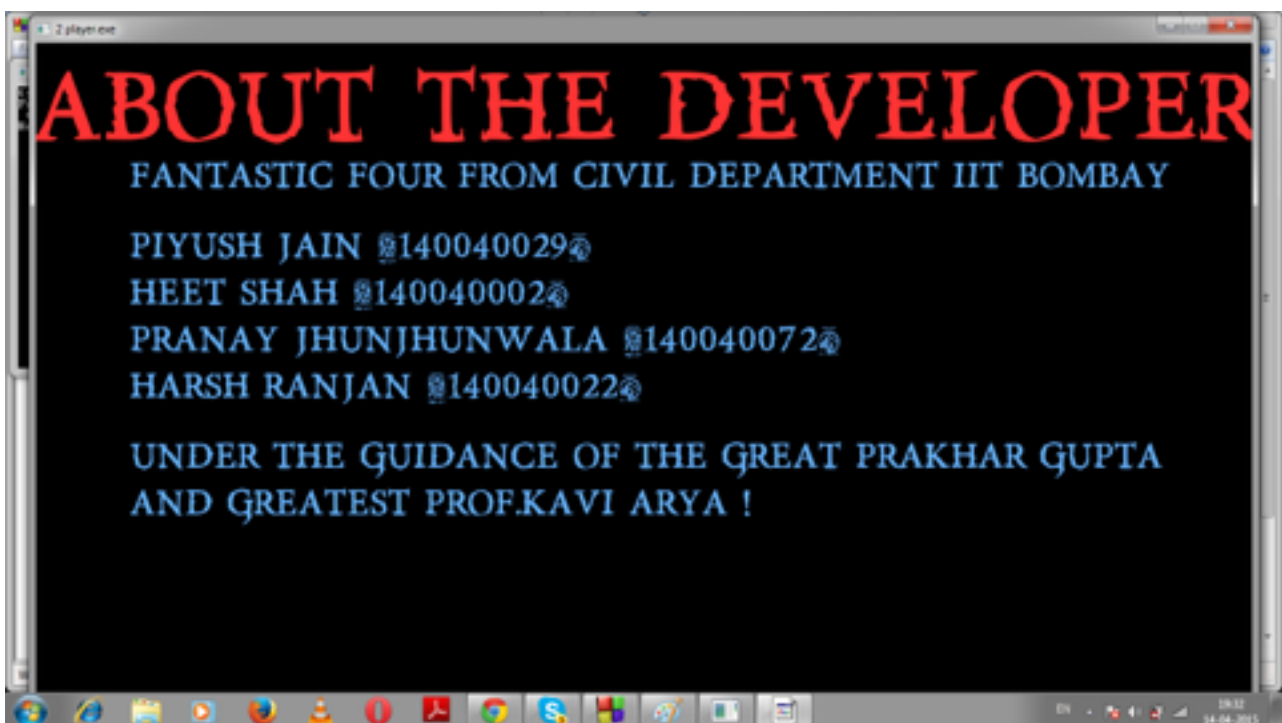
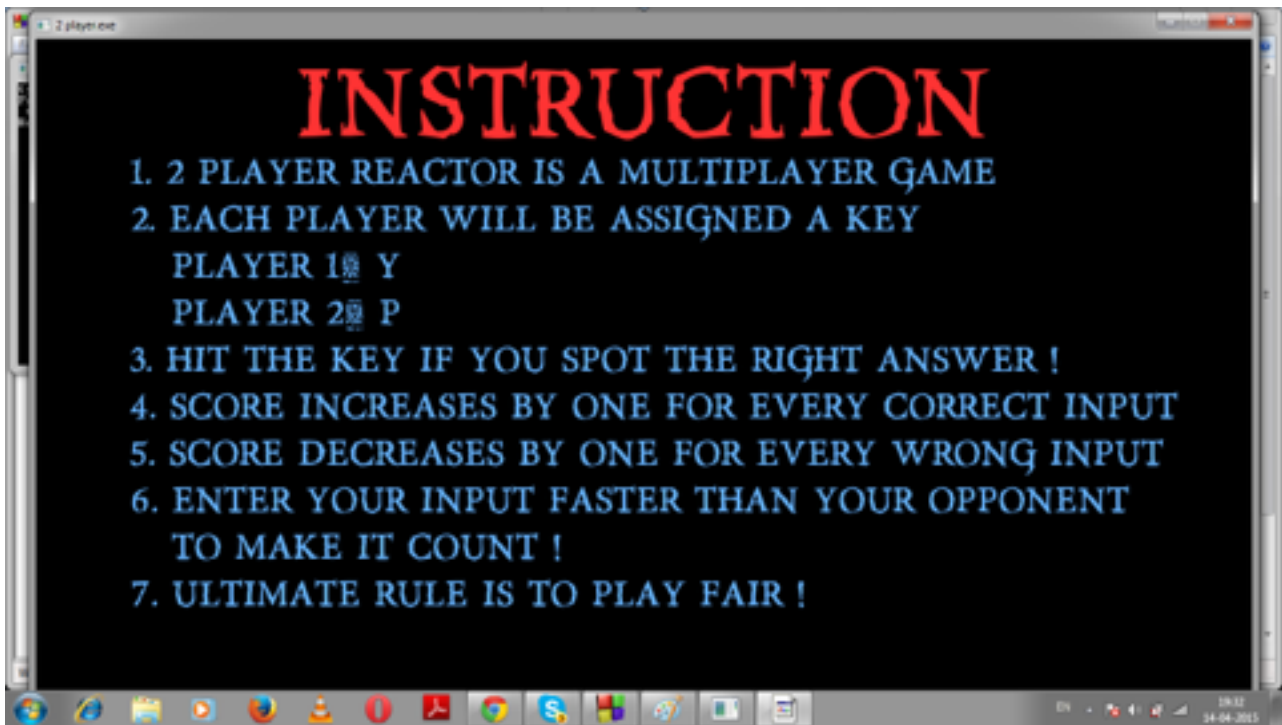
1. Download the folder, “2 Player Reactor”.
2. Double click “2 Player.exe”
3. Enjoy!

IMPLEMENTATION & TEST DATA

Home Screen:



- 4. **Play** - Starts the series of challenges.
- 5. **Instructions** - Will explain how the game is played.
- 6. **About the developer** - Will give details about the developers.

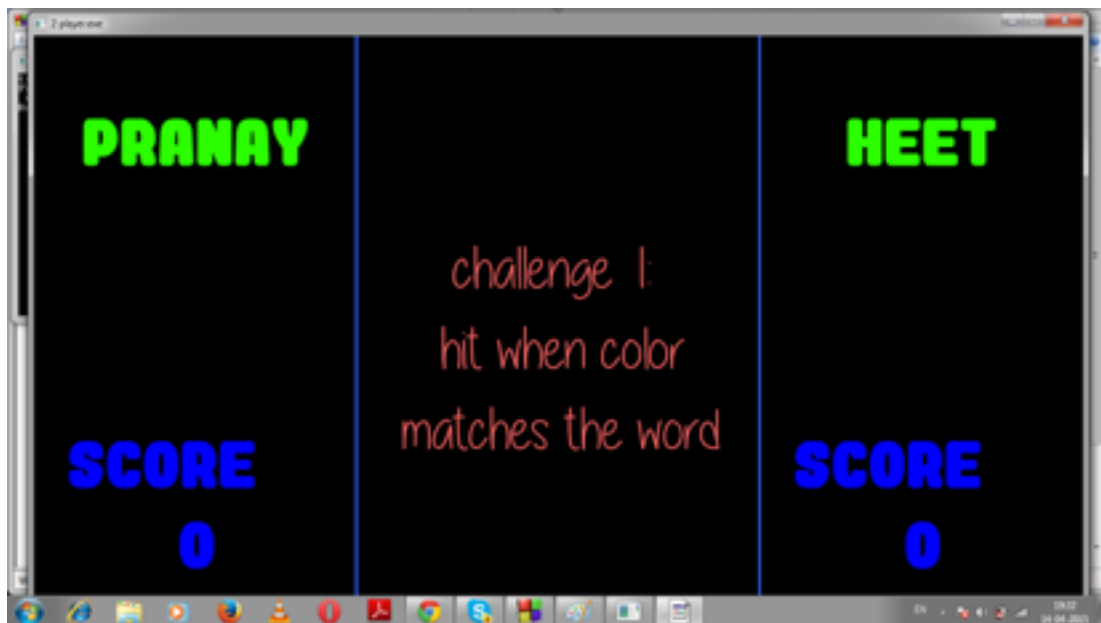


FUNCTIONALITY :

1. Presence of mind :

Challenge: “hit if the colour name is written with the correct colour”.

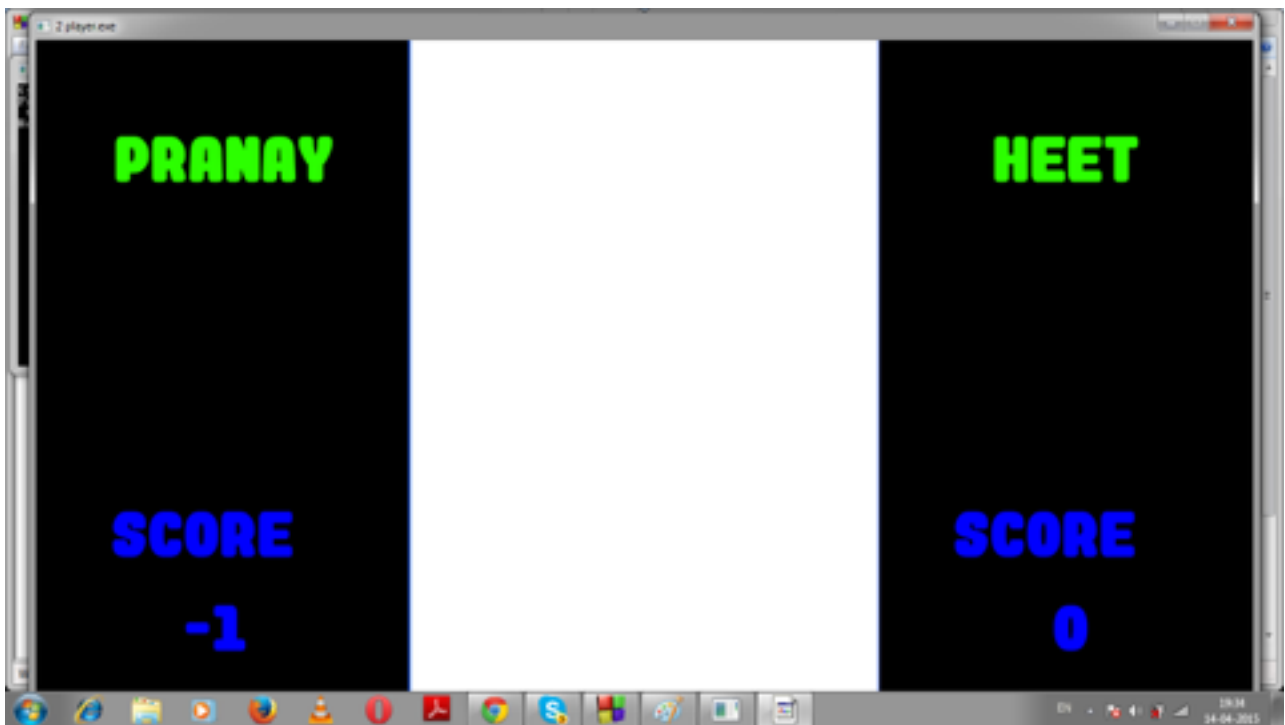
Description: Different colour names will appear on the screen with the correct or wrong colour code.



2. Reaction Time:

Challenge: 'hit when white screen appears'.

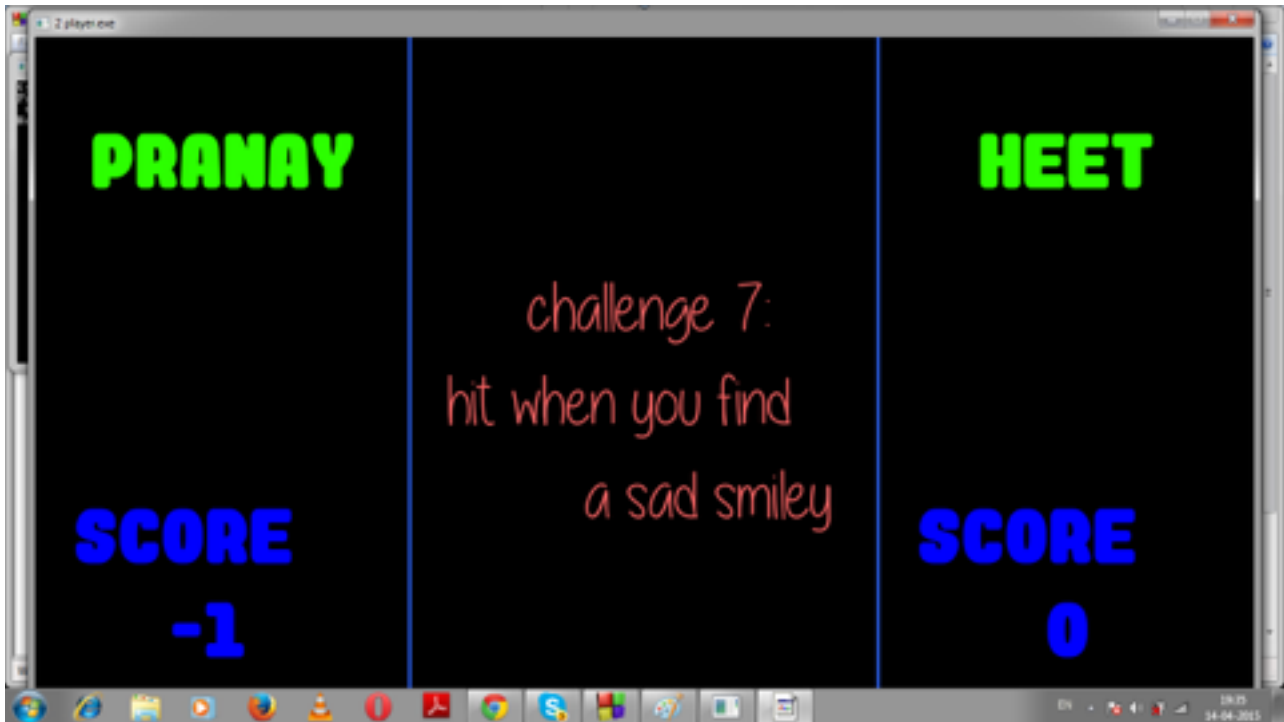
Description: The player who reacts first when the white patch of screen appears will get the point.



3. Optical Concentration:

a. Challenge: 'hit when a sad face appears among the smileys'

Description: There will be various smiley faces on the screen, and there may be a sad face hidden somewhere among them. The user has to detect the sad face and react.



b. **Challenge:** 'can the ultra man catch the monster (maze)'

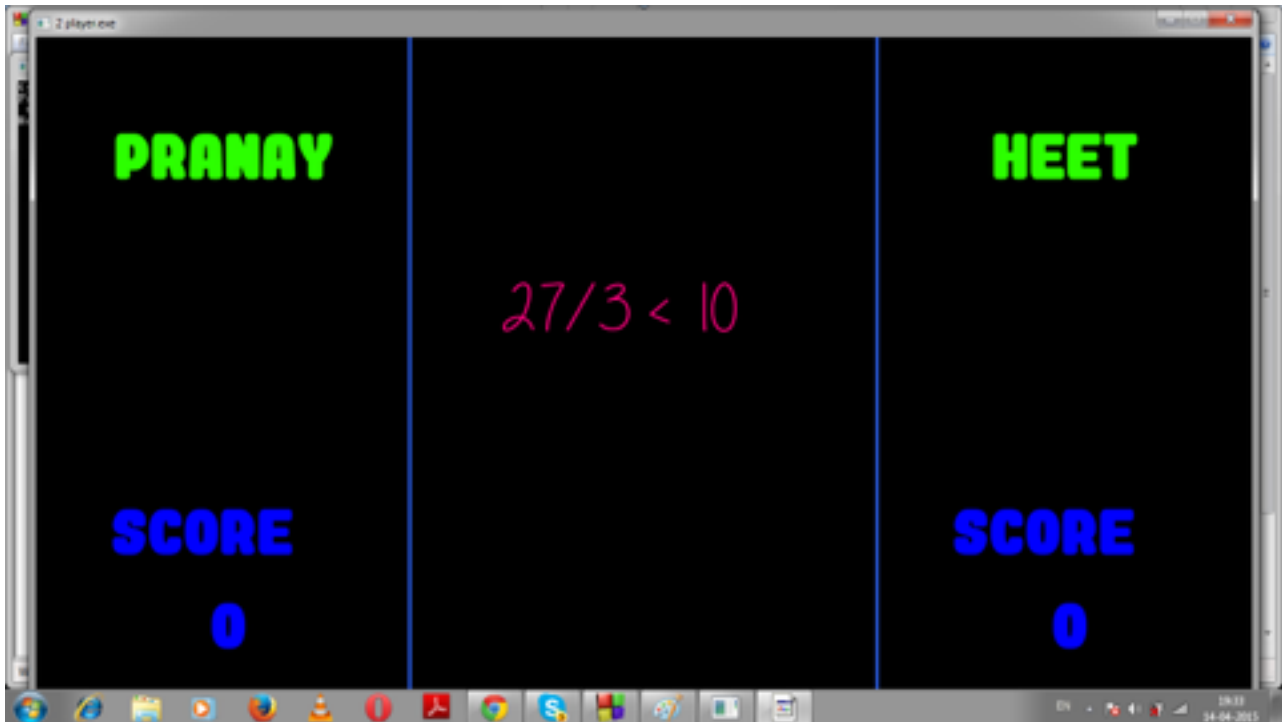
Description: this is a maze-based game. The players have to trace the path of the ultra man and check whether it leads to the monster or not.



4. **Arithmetics :**

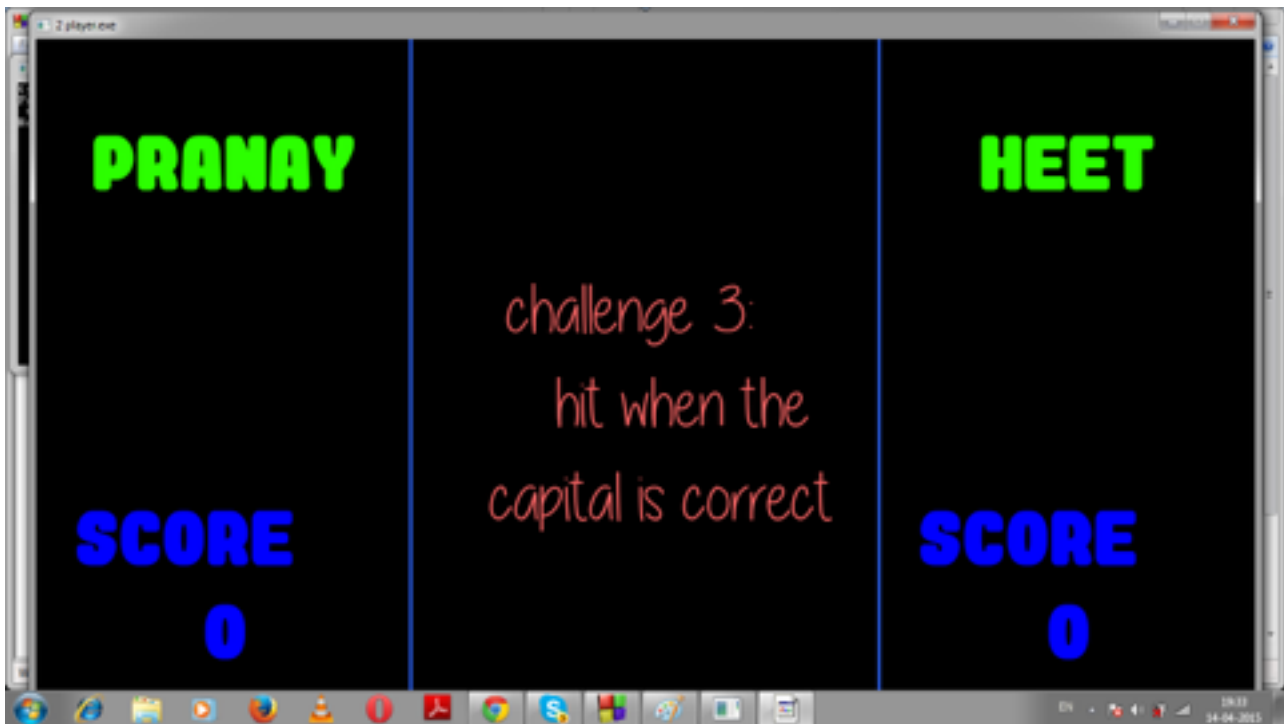
Game: addition, subtraction, multiplication, division based equations and in equations will be tested under pressure.

Description: Self explanatory.



5. General Knowledge :

Challenge: “hit when a country is displayed with its correct capital”



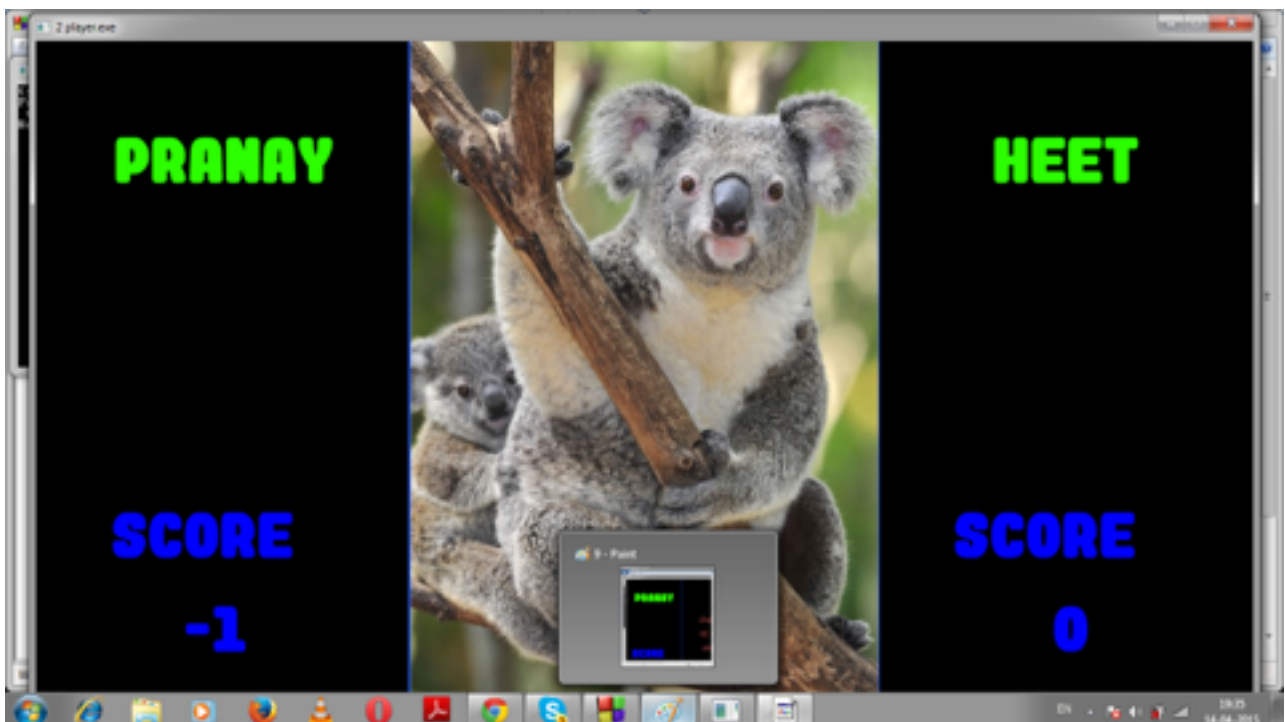
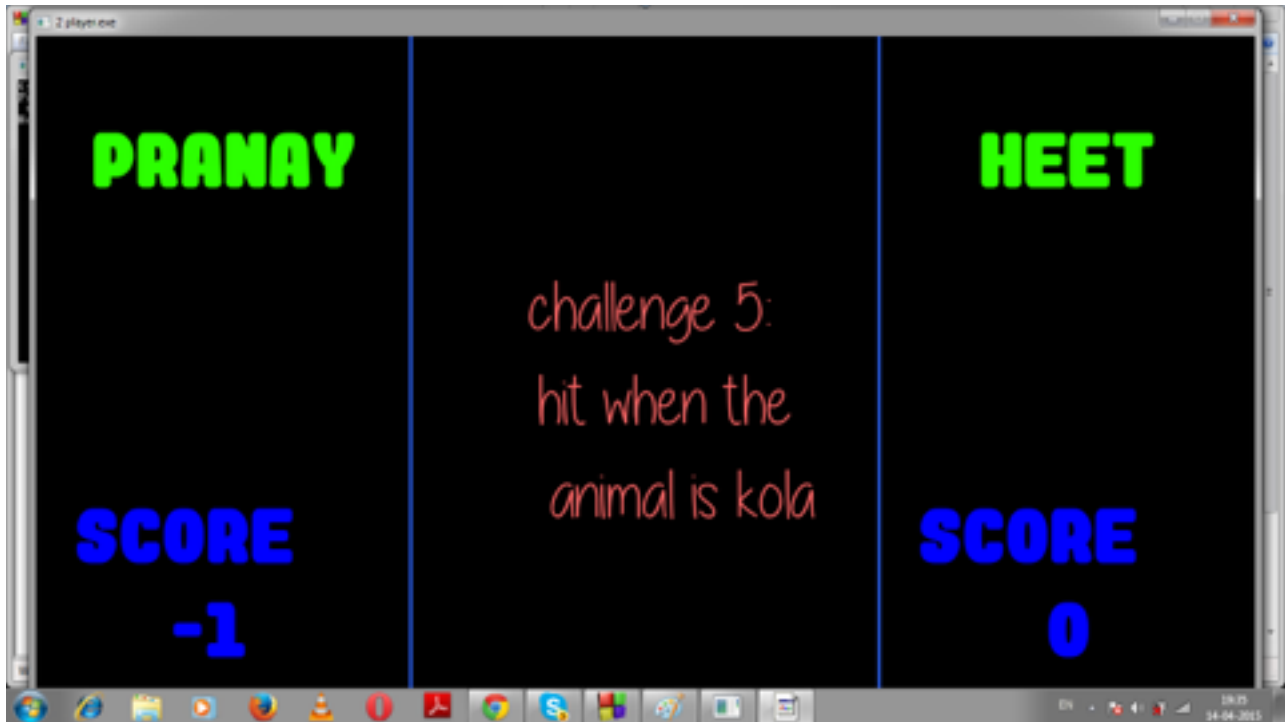
Description: Self explanatory.



6. Animal Detection:

Challenge: “hit when the koala appears”

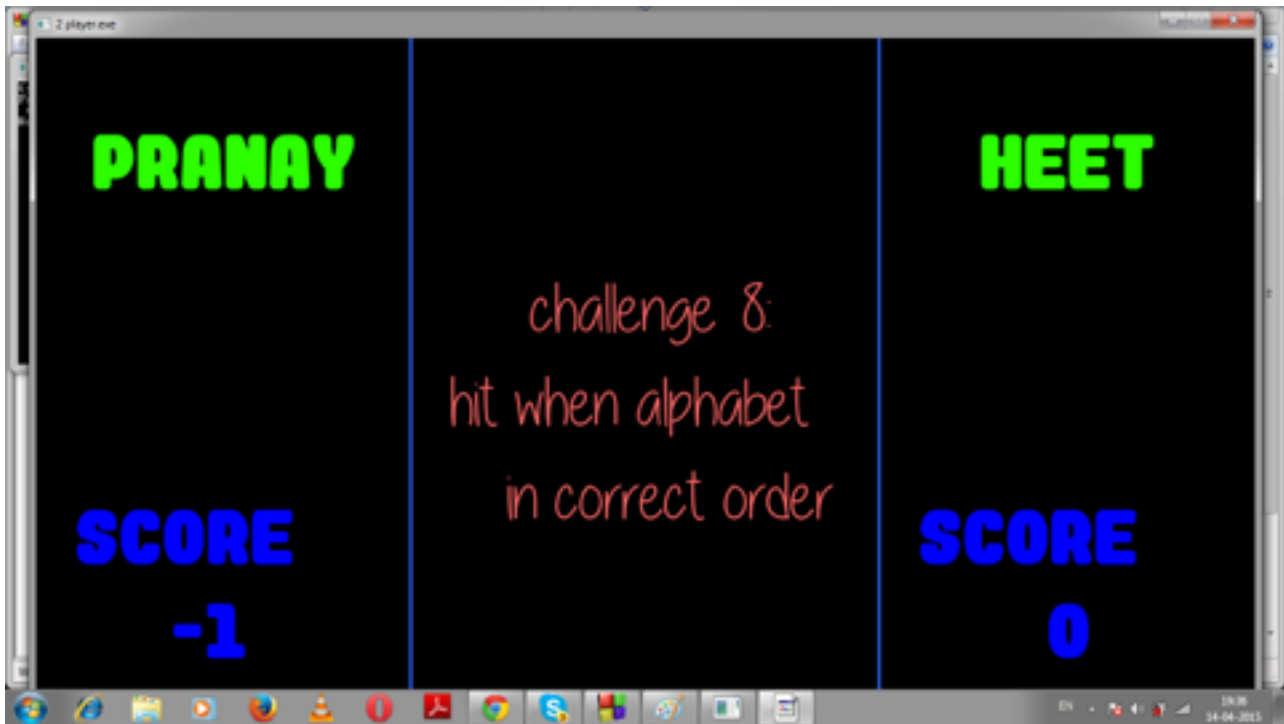
Description: different animals - lion, tiger, giraffe, cat, etc will flash on the screen. the user has to react as soon as the koala bear appears.



7. Alphabets:

Challenge: “hit if the alphabets are arranged in the right order”

Description: A set of alphabets will appear on the screen, they may or may not be in order.



Input : Pressing the button on the same keyboard, or one on keyboard and the other on mouse. Add on: Playing against user on network.

Score Keeping: For every correct answer the score will be incremented by one and for every wrong answer it will be decremented by one for the concerned player.



WINNER: The player with more points wins, else its a draw.



Problems:

1. **Continuous Keyboard input** - to take name input of users in allegro, we need to make separate character pointers for every alphabet. This way, we need to create more than 26 different cases to take input. Even then, they are not getting stored continuously.
2. **Timer** - It was difficult to change the screen after a particular time limit. It needed a timer function to be implemented against every display function.
3. **Only char pointers are displayed** - To include challenges like arithmetic equations, we had created a function which would create random numbers in the equations and random arithmetic operations would take place, and the user would have to react to that. The problem in integrating that into allegro was that we had to create character pointers for every integer, which was not feasible. The integers could not be converted to character pointers individually.
4. **Mouse Click** - To take input from mouse, where ever the mouse is clicked on the screen was a very difficult task. We had to specify the coordinates of the position of the mouse.
5. **Multiple Inputs** - When the user had pressed a key, the program was taking two inputs and the score of the current question and the successive one was being updated at once.

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6. **Input:** if any other key, except the two specified keys are pressed during a question, then the current question is skipped and the next one is displayed. This way if the user by mistakenly presses some other key, the questions will keep on getting skipped.
 7. If the name input from the user/ or any text is too long, it goes out of the limited coordinates and boundaries.
 8. **Name Input** - When we take input of the names of the players, and press spacebar in between, it takes the first word as the name of player 1, and the second word as the name of player 2. But we want spaces between the name of the same player.

Solutions:

1. **Continuous Keyboard input** - instead of taking input from the allegro interface, we have taken the input in the terminal window. The user has to enter the names of the two players in the black screen instead, which would be read and then displayed in the allegro generated window.
2. **Timer** - We had gone through various articles on the web as to how to include the timer function. After vigorous searches, and experimentation, it was successful. Timer is an event, which repeats itself after some particular time period.
3. **Only char pointers are displayed** - This was a major problem for us. We had to convert every integer, special signs, and every element of the string to character pointers. Therefore, instead of the randomly generated equations, we manually created around 15-20 equations within a string, for e.g. “ $7 + 5 = 12$ ”, and put them into different switch cases.
4. **Mouse Click** - so, we defined the range of the x and y coordinates where if the user clicks the mouse, we will get a specific input. This way, we used the mouse click function, and integrated it into our program.
5. **Multiple Inputs** - So, we basically improvised in this case. We added a black screen after every question. The black screen would read the second input from the user, and do

nothing. The screen would last for 0.3 seconds, which would pass unnoticed by the user.

6. **Name Input:** we used the 'gets' function to take input of the names of the two players separately. In this way, we can add as many spaces we want, between the name of the same players.

Future Directions:

A large number of challenges can be added:

1. Countdown: Hit when the countdown reaches zero.
2. Tic Tac Toe: Hit if there are 4 crosses in a row.
3. More negative than positive: hit if there are more number of negative signs on the screen.
4. Two shapes of the same kind: if the two shapes are exactly same.
5. Arrow illusion: will the two arrows fit
6. Population: which countries' population is more. e.g.. India > Pakistan
7. Matching Logo - hit if the logo matches its brand.
8. World's flags - hit if the correct flag is shown against its country.
9. Colliding shapes : hit when the shapes collide.
10. Can it fly: can the object displayed on the screen fly.

The game can be extended to more than two players on the same computer.

1. We have used two particular keys to allow two players to play the game. Likewise, more keys can be assigned to include more players. The Mouse click buttons can also be used for taking input.
2. For more than two players, we have to change the screen of the game likewise. For 4 players, there should be scores of four players displayed on the screen. This can be achieved via switch-cases.

Custom Games:

1. This will allow the players to choose only specific challenges that they would like to face. They can disable several challenges.
2. The user will be prompted on the home screen to choose custom games. He will enter specific numbers, corresponding to the games he would like to play.
3. This can be coded via switch cases as well.

The game can be played via LAN between two or more computers.

1. Socket programming in JAVA or Node JS can be used to communicate between computers via LAN or the same wifi network.
2. There will one host computer, to which other computers will connect to, and their responses will be taken via networking.
3. There will be an option in the home screen to choose 'lan gaming'. This will create a host address, and other players can connect to this address and respond via pressing a specific key.
4. Broadcasting of the game has to be done on the network, which is complex and needs time to learn and change the code accordingly.

CONCLUSION:

2 Player Reactor is a game made for leisure and pass - time, which has mostly to do with competing with the opponent on how fast one can react. One's skills, as well as general knowledge is tested in different types of games.

Making this game took us 3-4 weeks, including research in the graphics section. Given more time, this project can be further built into a big one, by including a variety of new games, and modifying the graphics.

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