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SIMPLE GAME AI FOR ROCK –PAPER-SCISSORS

Subject – Artificial Intelligance

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CSE – AIML

Section – B

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INTRODUCTION

Rock, Paper, Scissors is a classic hand game that has stood the test of time as a simple yet entertaining way to make decisions, settle disputes, or just have fun with friends. Originating as an ancient game in Asia, it has evolved into a universal pastime enjoyed by people of all ages worldwide. The game is built on the principle of three choices—rock, paper, and scissors—each of which beats one and loses to another in a loop of outcomes.

It’s easy to play, requires no equipment, and relies on both luck and strategy, making it a perfect mix of simplicity and excitement. Whether it's used in playful competitions or lighthearted challenges, Rock, Paper, Scissors holds a special place in social interactions. Ready to throw your best move?

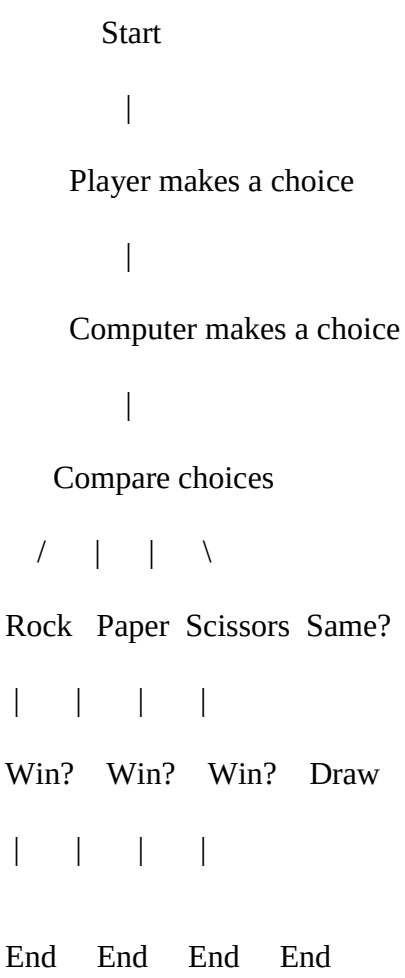
METHODOLOGY

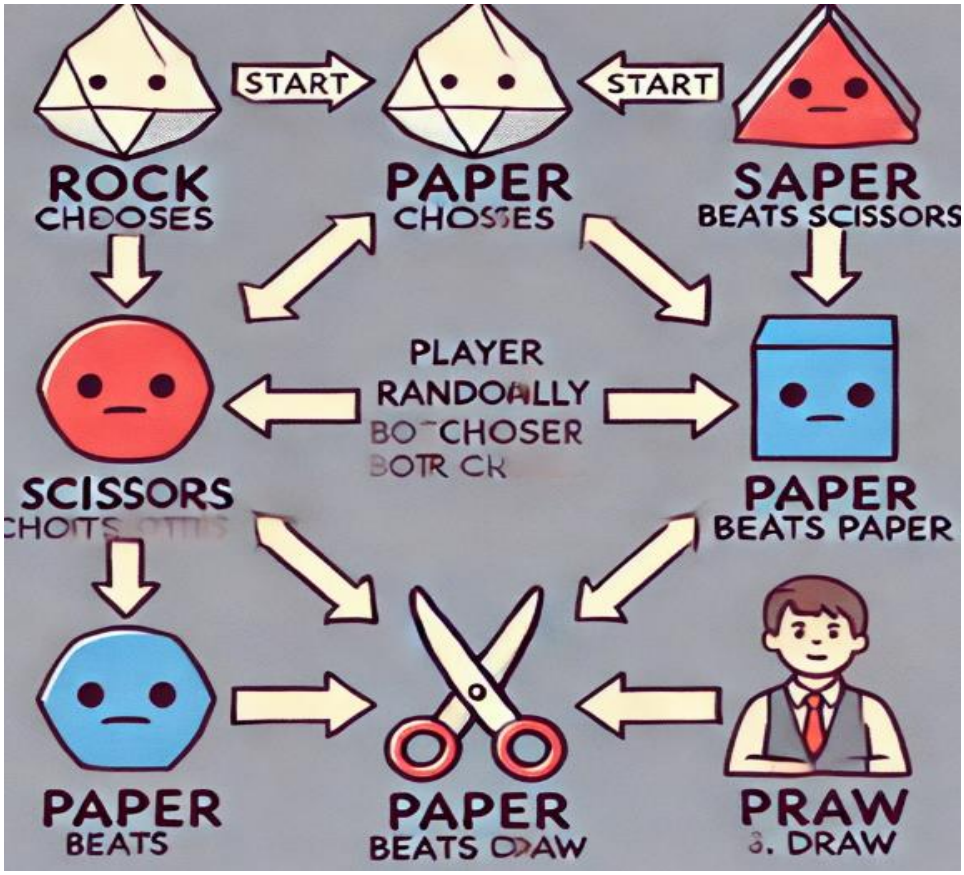
When coding a game like Rock, Paper, Scissors, the approach typically involves these steps:

1. **Game Rules and Logic**:
    - Understand the basic rules:
        - Rock beats Scissors.
        - Scissors beats Paper.
        - Paper beats Rock.
        - A tie occurs when both choices are the same.
2. **Input from Players**:
    - Allow the user to make a choice (Rock, Paper, or Scissors).
    - Use inputs like text or numbers to represent the choices.
3. **Random Opponent Selection**:
    - If the game is single-player, implement a computer opponent.
    - Generate the computer's choice randomly using a random number generator.
4. **Determine the Outcome**:
    - Compare the player's choice and the computer's choice based on the rules.
    - Decide whether the player wins, loses, or it’s a tie.

5. **Feedback to the Player**:
    - Display the choices and the result of the game (e.g., "You win!" or "It's a tie").
    - Optionally, provide additional information like the computer's choice.
6. **Game Loop**:
    - Wrap the game logic in a loop to allow the player to play multiple rounds.
    - Provide an option to exit the game.
7. **Error Handling**:
    - Handle invalid inputs gracefully (e.g., if the player enters something other than Rock, Paper, or Scissors).
8. **Enhancements (Optional)**:
    - Keep track of scores across multiple rounds.
    - Add graphical interfaces or animations.
    - Implement different levels of difficulty by modifying the computer’s behavior.

FLOWCHART


Start
Player makes a choice
Computer makes a choice
Compare choices
Rock
Paper
Scissors
Same?
Win?
Win?
Win?
Draw
End
End
End
End


START
START
ROCK
CHOOSES
PAPER
CHOSES
SAPER
BEATS SCISSORS
PLAYER
RANDOALLY
SCISSORS
PAPER
BEATS PAPER
PAPER
BEATS
PAPER
BEATS
PRAW
DRAW

CODE:

```
#import the random library

import random

#choices in game

choices = ["rock","paper","scissors"]

#function to show that ai is always winnner.

def win(player,ai):

  #if both player and ai choice are same , its a tie.

  if player == ai:

    return "It's a tie! □"

  return "AI wins! 👽"

# Use while to run infinitely.

while True:

  #Enter the player choice

  choice_player= input("Enter Rock, Paper, or Scissors (Or 'quit' to exit the game): ").lower()

  #If a player types 'quit' then end the game

  if choice_player == "quit":

    print("Thanks For playing! ☺")

    break

  # To check that player enter a valid choice or not

  if choice_player not in choices:
```

```
  print("Invalid choice! Please choose from Rock, Paper, or Scissors.")
  continue # Re enter the choice
if choice_player == "rock":
  choice_ai = "paper" #Paper win over rock
elif choice_player == "paper":
  choice_ai = "scissors" #scissors run over paper.
elif choice_player == "scissors":
  choice_ai = "rock" #rock run over scissors.
  #to print first letter capital if it is in lower.
print(f"AI chose: {choice_ai.capitalize()}")
#print the result
print(win(choice_player,choice_ai))
```

OUTPUT

```
Enter Rock, Paper, or Scissors (Or 'quit' to exit the game): Rock
AI chose: Paper
AI wins! 👾
Enter Rock, Paper, or Scissors (Or 'quit' to exit the game): Paper
AI chose: Scissors
AI wins! 👾
Enter Rock, Paper, or Scissors (Or 'quit' to exit the game):
```

REFERENCES:

Code by – chatgpt

Image or flowchart-copilot