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CS162

Assignment 3: “Is A” Relationship/Inheritance with RockPaperScissors

Problem Statement:

Demonstrate inheritance through a game of Rock Paper Scissors. A normal/modified game will use the comparison of strengths rather than the comparison of types.

Program Design:

***Main:***

***Declare rock, paper, scissor objects***

***Ask user whether or not they want to modify the preexisting strengths for Rock, Paper, Scissors{***

***If yes, modify***

***If no, keep default and move on***

***}***

***Call “Play_Game”***

***Play_Game:***

***While(user still wants to play) {***

***Ask user for tool (r, p, s, or e) {***

***If rock, upcast rock object to Tool object in player array***

***Else if paper, upcast paper object to Tool object in player array***

***Else if scissors, upcast scissors object to Tool object in player array***

***Else if exit, end program***

***}***

***Have computer choose (randomly) from rock, paper, or scissors and upcast to computer array accordingly***

***Compare_tools(player_tool, computer_tool)***

***}***

***Compare_tools:***

***If player tool has greater strength, append player wins***

***Else if computer tool has greater strengths, append computer wins***

***Else append draws***

***Print wins/draws/losses***

Problem Testing:

| | Input Values | Expected Output | Expected? |
|---|---|---|---|
| Do you want different strengths? | y | Pass | Yes |
| | n | Pass | Yes |
| | Yes | error | Yes |
| | No | error | Yes |
| | ddsdasasdasc | error | Yes |
| | yn | error | Yes |
| Choose your tool: | r | Rock is assigned | Yes |
| | p | Paper is assigned | Yes |
| | s | Scissors is assigned | Yes |
| | e | Program terminates | Yes |
| | rpse | Error | No |
| | espr | Error | No |
| | ddddas | Error | No |
| | zxczxczxc | Error | Yes |