You Are It

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Introduction:

Our program lets users play a game of tag which is a really popular outdoor game to play with friends but with a twist in it. You can choose between several different types of tag game modes like freeze tag, zombie tag, cops and robbers, etc. Our game was created to solve the lack of tactical and strategic based games in recent times. The game of tag involves a heavy use of strategy since you have to decide where to run or the most effective way to tag someone. The rules of tag are dependent on the game mode you choose however there are some basic rules each mode has. There is a person who is the tagger and a group of people who are running away from the tagger and you want to not let them catch you or else you will be out of the game. Once you are tagged then your goal is to make sure no one wins by tagging the rest of the people. People who would want to use our program are people who love playing games which are not specifically shooter based and require thinking and also military strategists who are trying to find the optimal way of tagging their enemies based on their weapons and resources. The primary features of our game will include a menu screen, rules screen playable maps, different tag modes, networking and customization for your characters and obviously the actual game screen where you are playing the game. The game of tag has a "boundary" in which you play, which means that you are restricted to how far you can run around.

Instructions:

The Setup:
When you start the program you will see a menu screen where there are five choices. The button at the very top will be the play button. When you click on that, you can select the map you want to play in and also what tag mode you want to play. The next button will lead you to the rules screen where it will explain how each tag mode works. The next button will be the settings button where you can choose to join a server or host a server. The next button will be the credits button that will give credits to the creators. For the first through fourth button, when you want to go back to the menu, there will be a 'back' button at the bottom left corner.

Basic Gameplay:
Once you start the game, the program will randomly assign one of you to be tagger and others as runners. You can control movement using WASD keys. The goal of the runner is to run away from the tagger and the goal of the tagger is to tag everybody before the time runs out. To tag a person you will need to have your character overlap with the runner character. To make the game require more strategy, the tagger will have a 10% speed advantage compared to the runners.

Features List (THE ONLY SECTION THAT CANNOT CHANGE LATER):

Must-have Features:

- Different playable maps to play tag on including a special map features in all of the maps
  - A beach map where everyone's speed is slower.
  - Water park where it is slippery and it is harder to change directions because you keep sliding
- 3 different tag modes to have in our game
  - Normal Tag (At least 2 people) - Once someone gets tagged they get kicked out of the round. People who were tagged can still spectate the round but not play it. If not everyone is tagged by the time the time runs out then runners win else taggers win
    - Goal for tagger - Tag everyone before the time runs out
    - Goal for runner - Not to get tagged before time runs out.
  - Freeze Tag (At least 4 people) - If taggers tag someone they do not get kicked out of the game, instead they freeze. The other people can also unfreeze the person frozen if another runner is able to continuously touch them for 2 seconds. If everyone is frozen by the time the timer runs out then taggers win or if the taggers are able to freeze one person 3 different times then they win also. Else the runners win.
    - Goal for tagger - Tag everyone or tag one person three times
    - Goal for runner - Don't get tagged, save others
  - Cops and Robbers (At least 4 people) - At least 2 people will be cops/taggers and their goal is to defend the treasure and put the robbers/runners in jail by tagging them. Once a robber is tagged, they will be teleported to the jail which is at the center of the map and will not be able to move. Another robber can save a robber in jail by touching that robber. The goal of the robber is to try and touch the treasure located somewhere in the map and run back to their base without getting tagged. If the robber is tagged while carrying the treasure, the treasure will teleport back to its original location. To prevent the cops from blockading the treasure, there will be a small safe zone around the treasure. If the robbers successfully reach their base with the treasure, the game ends and the robbers win the game. If the time limit is up and the treasure is still not in the base or if all the robbers are tagged, the cops will win the game.
    - Goal for cops - Prevent the robbers from stealing the treasure by tagging them
    - Goal for robbers - Steal the treasure, save other robbers, don't get tagged
- Make the game of tagged be playable over a network to make the game multiplayer
- Make the menu screen for the game where you can choose your mode, number of people, and the map to play.
- Make a settings screen where you can adjust the number of rounds, taggers, and choose between WASD and arrow keys.
- Make a rule screen where you can learn about the rules of each mode

- Make a credits screen where you can see who created the game
- The abilities in each game which can change the tides of the game very quickly towards your specific teams. Each of these abilities spawn randomly throughout the course of the game. Each ability is one-time-use and the spawn will disappear the moment someone picks it up. There can only be a total of 4 abilities (same ability or different) at the same time on the map.These abilities activate the moment you touch them. Tagger-limited abilities can only be seen by taggers and runner-limited abilities can only be seen by runners.
    - Abilities which help the taggers
        - Glue Hands - Lets the taggers catch runners in a bigger radius. The tagger who gets this will have a small circular area that tags any runner in that domain. Both taggers and runners will be able to see this circle. Lasts for 7 seconds.
    - Abilities which help the runners
        - Sneaky cloak - Lets you be invisible to both runners and taggers for 7 seconds
    - Abilities both can pick up
        - Increased jump - Lets you jump 20% higher for a period of 7 seconds.
        - Super Slick - Gives you a 25% increase in speed for 7 seconds.

Want-to-have Features:

[These are features that you would like to have by the project due date, but you're unsure whether you'll hit all of them. A good final project would have perhaps half of these completed. At least 5 are required. Again, fully describe each.]

- Characters to be able to perform combo moves once they reach a certain point throughout their game
- Add more maps
- Sound effects in the game to make it more intense and packed and make the ticking sound when the timer reaches the last 30 seconds.
- Animations for special effects which make the UI look more cleaner
- A way to collect rewards when you get wins and a battle pass where you can unlock skins
- Adding emotes in your game to express how you feel: happy, angry, sad
- Adding a way to save your progress so that you can progress in the battle pass

Stretch Features:

- 3D version which depicts how a real life game of tag would look like if you played it
- A chat system where people can chat and be toxic to each other once they win
- Allowing you to create your own maps to play on including adding special features to your map

Class List:

- Sprite - Representing the player in the game
  - Player - Represents the tagger and runner class
- Screens - Superclass for the screens below
  - MenuScreen - The menu screen which appears first when you start the program
  - PlayScreen1 - The
  - RulesScreen - The screen which contains the rules for all the gamemodes
  - ScreenSwitcher - The interface responsible for switching screens
  - SettingScreen - The screen where you can change your input from wasd to arrow keys and vice versa
  - AbilitiesInstructScreen - This screen contains all the abilities for each ability so that you know them before the game starts
  - GameOverScreen (not used)
  - RoundOverScreen - When the timer runs out or a player loses it switches to the game over screen
  - NormalMapScreen - This is the basic game mode and the basic map screen
  - CreditsScreen - The credits for the game
  - ForestMapScreen - When you select the forest map it goes to this screen
  - FourPlayerOrNetwork (not used)
  - MultiplayerOrNetwork - Checks to see whether you are playing multiplayer or network version of tag
  - NormalMapFreezeTagScreen - Map for freeze tag on the normal map
  - Start1v1Game - Starts the 1v1 game by prompting the users to enter their name
  - StartNetworkGame - Starts the game when played over a network
  - TwoPlayerOrNetwork (not used)
  - WaterMapScreen - The water map screen
- SpecialAbilities - Superclass for the below abilities
  - DiveTag - The dive tag ability gives the tagger increased range so it is easier for him to tag the person
  - HighJump - High jump makes it so that the runner can jump higher
  - SneakyCloak - Sneaky cloak is an ability where the player can become invisible
  - SpeedBoost - SpeedBoost makes the player faster
- System - Representing the driver class
  - DrawingSurface - The class where all the screens are instantiated and the switching between screens happened
  - Main - Calls the DrawingSurface which runs the code

Credits:

Inside Sources:

    Noah:
        a) AbilitiesInstructScreen
        b) GameOverScreen
        c) RoundOverScreen
        d) DiveTag
        e) HighJump
        f) SneakyCloak
        g) SpecialAbilities
        h) SpeedBoost
        i) Sprite
        j) StartNetworkGame
        k) TwoPlayerOrNetwork

    Kartik:

        a) Screens
        b) ScreenSwitcher
        c) TwoPlayerOrNetwork
        d) FourPlayerOrNetwork
        e) MultiplayerOrNetwork
        f) Start1v1Game
        g) WaterMapScreen
        h) CreditsScreen
        i) ForestMapScreen

    Both:
        a) Player
        b) MenuScreen
        c) SettingScreen
        d) RulesScreen
        e) PlayScreen1
        f) DrawingSurface
        g) Main
        h) NormalMapFreezeTagScreen

Outside Sources:

- Shelby's Coding demo - Screen Switcher
- Processing

- Shelby's Networking Demo - Not fully implemented
- Shapes library - Intersection between lines and rectangle