PREZIT (SURVIVAL SHOOTER GAME)

by

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BONAFIDE CERTIFICATE

Certified that this project report entitled "PREZIT (SURVIVAL SHOOTER GAME)" is a bonafide work of – ADAVELLI ROHAN REDDY (20BRS1270) who carried out the Project work under my supervision and guidance for CSE2039 – FUNDAMENTALS OF ARTIFICIAL INTELLIGENCE

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INTRODUCTION

Scratch is a coding language with a simple visual interface that allows people to create digital stories, games, and animations. Scratch is designed, developed, and moderated by the Scratch Foundation, a non-profit organization.

Scratch promotes computational thinking and problem-solving skills; creative teaching and learning; self-expression and collaboration; and equity in computing.

In the game created for this project using Scratch, the motive of player is to –

- > survive the enemy attacks,
- > shoot bullets and
- ➤ kill enemies before they touch him and deplete his health.

Player can use arrow keys to move and rotate, use number keys to switch guns and space to shoot

CONTROLS

- ↑ Move front
- ↓ Move back
- \leftarrow Turn left
- → Turn right
- 1 Switch to Pistol
- 2 Switch to Machine Gun

Spacebar - Shoot bullets

ACTIONS

- Move front or back
- Turn left or right
- Switch guns
- Shoot bullets

STATE SPACE

A State space is the set of all states reachable from the initial state.

States => Coordinates: x = [-240, 240], y = [-180,180]; Direction: [-180,180]

FOR PLAYER -

Start State =>
$$x = -184$$
, $y = -2$

Goal State => Bullet touching enemy (temporary), no enemies left (final)

FOR ENEMY –

Start State =>
$$x = 250$$
, $y = [-170,170]$

Goal State => Player's position

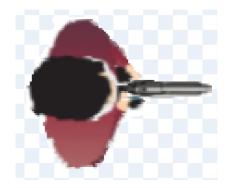
WORKING LOGIC

- When game is started, player will be at the coordinates x = -184, y = -2 and will have a pistol gun with health bar full (lives = 3) and score 0.
- If '2' is pressed, the costume is changed to player with a machine gun and '1' to shift back to pistol
- Pistol has double the damage of machine gun.
- When 'space' is pressed, bullet is released one after another and firing rate of machine gun is higher than pistol but the accuracy of machine gun is lesser than pistol.
- There are 2 enemies where 1st one has 3 in 4 chances of appearing and other one 1 in 4 chances.
- Enemies appear randomly at x = 250, y = [-170,170] and move towards the player's location.
- If a bullet touches an enemy, based on the damage of the gun the enemy's life is reduced
- When enemy life becomes 0, it is killed and based on the enemy the score is increased.
- If an enemy touches a player his health bar is decreased and he reappears randomly at x = -184, y = [-170,170].
- When the health bar is completely depleted, game stops and backdrop is changed to 'Game Over' screen where final score is displayed.

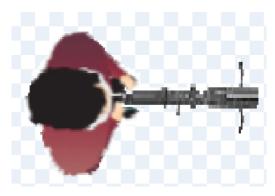
COSTUMES

PLAYER -

Pistol -



Machine Gun –



EMEMY -

Enemy 1 -



Enemy 2 -



CODE

BACKDROPS -

```
when clicked

switch backdrop to StripesP 

forever

if lives = 0 then

switch backdrop to Game Over 

play sound Pew 
until done
```

PLAYER -

```
when 📜 clicked
set score ▼ to 0
    tch costume to gun
      key 1 ▼ pressed? then
   switch backdrop to StripesP •
   set gun ▼ to Pistol
   set damage ▼ to 2
  if key 2 ▼ pressed? ther
   switch backdrop to StripesM ▼
   set gun ▼ to Machine Gun
   set damage ▼ to 1
     key right arrow ▼ pressed? then
   turn (* 3 degrees
     key left arrow ▼ pressed? then
   turn 5 3 degrees
     key up arrow ▼ pressed? then
   move 1 steps
     key down arrow ▼ pressed? then
    move -1 steps
```

```
when clicked

go to x: -184 y: -2

point in direction 90

set gun v to Pistol

set damage v to 2

forever

if key space v pressed? then

create clone of Bullet v

if gun = Pistol then

wait 0.5 seconds

if gun = Machine Gun then

wait 0.3 seconds
```

```
when clicked

forever

if touching Enemies ? then

change lives by -1

wait 0.5 seconds

go to x: -184 y: pick random -170 to 170
```

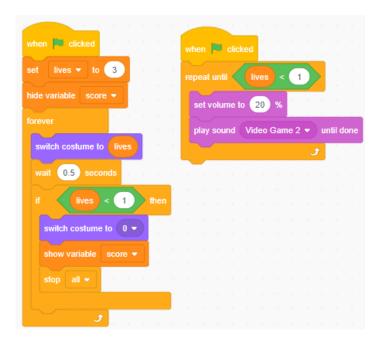
BULLET -

```
when I start as a clone
when 🏴 clicked
               go backward ▼ 99 layers
                   gun = Pistol then
                 switch costume to costume1 ▼
                  gun = Machine Gun
                 switch costume to costume2 +
                 point in direction direction ▼ of Player ▼ + pick random -2 to 2
                move 25 steps
                repeat until touching edge v ? or touching Enemies v
                 if gun = Pistol then
                   move 15 steps
                       touching Enemies ▼ ? then
                    play sound pop 🕶 until done
                     gun = Machine Gun
                   move 8 steps
```

ENEMIES -

```
enemy = Robot Spide
                                               itch costume to Robot Spider •
1.5 seconds
   pick random 1 to 4 = 1
  enemy v to Evil Shrek
  enemy • to Robot Spider
                                                    enemy = Evil Shrek
                                                 touching Bullet • ? th
                                                  0.05 seconds
                                                       enemy = Evil Shrek
```

HEALTH -



SCORE -

```
when I start as a clone

set digits v to 1

repeat 30

create clone of myself v

change digits v by 1

phide

forever

go to front v layer

set size to 30 %

go to x: digits * 12 - 170 y: 159

hide

if length of score < digits then

hide

else

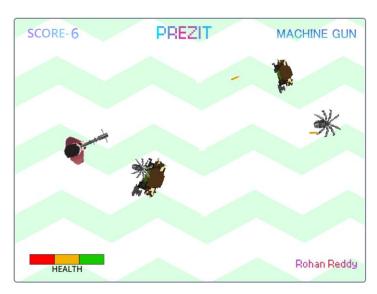
show

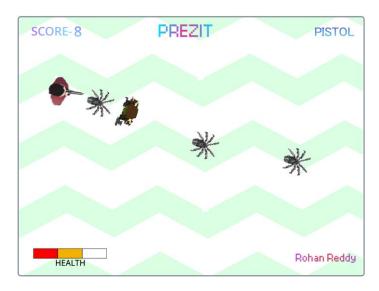
switch costume to letter digits of score
```

SIMULATION











GAME LINK

https://scratch.mit.edu/projects/676807397

FUTURE SCOPE

- Multiple levels can be created
- After a particular score, the stronger enemy can appear more frequently
- A store can be introduced
- Power-ups based on cash collected can be introduced
- More guns can be added
- More enemies with different speed and health can be added
- Multiplayer option can be created

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