ITM Skills University

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Case Studyse Study 119: Desert Survival Simulation

Introduction to the Case Study

This case study presents the design and development of a Desert Survival Simulation using Scratch programming. The player must survive in a desert environment by managing water, heat, and food resources.

Problem Statement / Case Background (Abstract)

The desert environment presents extreme survival challenges. This simulation demonstrates how limited resources and harsh conditions affect survival. The goal is to survive for the maximum possible time by making smart decisions.

Problem Statement / Case Study Design

The game includes player movement, resource management, oasis refills, heatwave obstacles, and a day-night cycle. The design focuses on simplicity and learning outcomes.

Methods & Algorithms Technology Applied

The project uses Scratch 3 with event handling, loops, conditionals, variables, and timers to control gameplay logic.

Implementation Details and Snapshots

Variables such as water, food, heat, and survival time are updated continuously. The player interacts with oases and avoids heatwaves. Snapshots show player movement and resource changes.

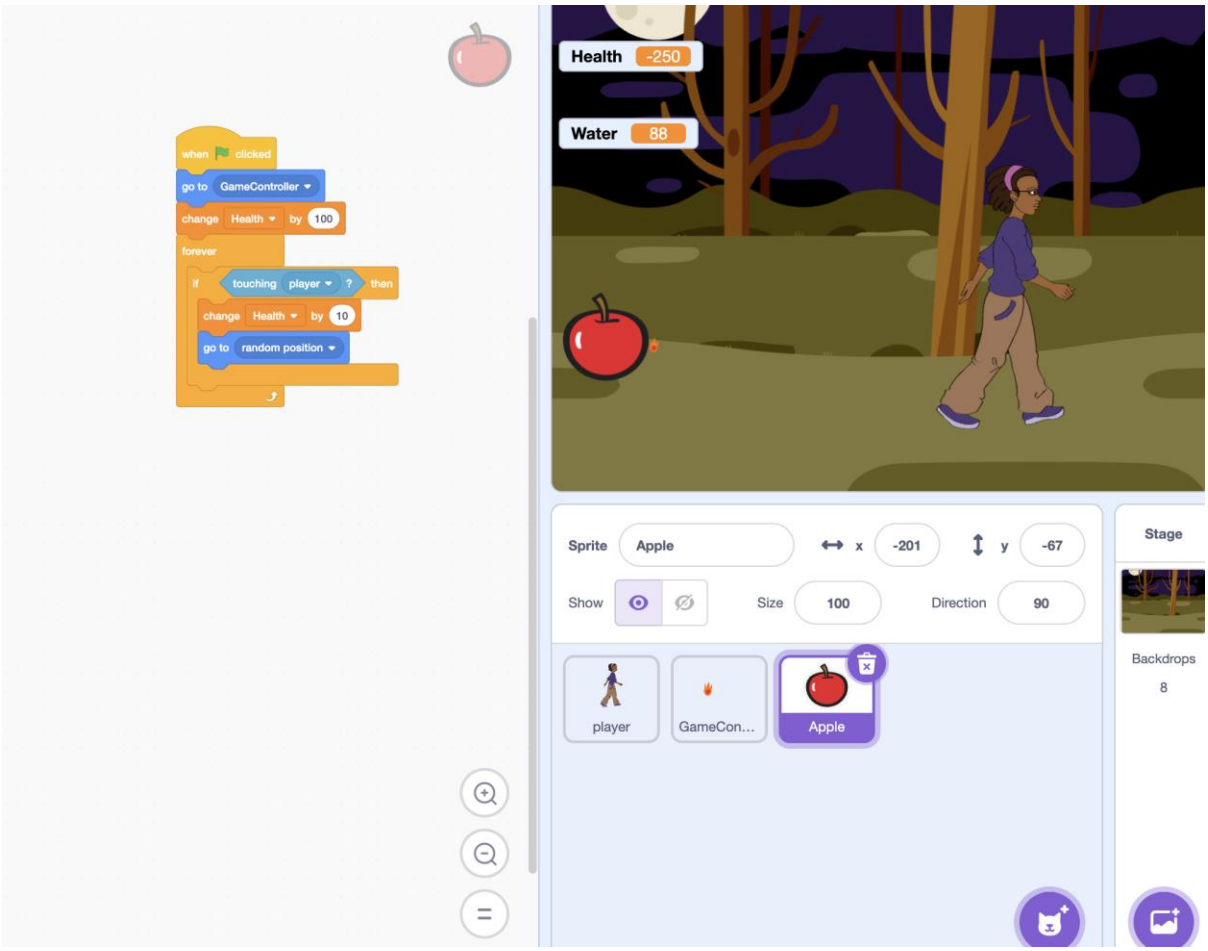
Results and Conclusion

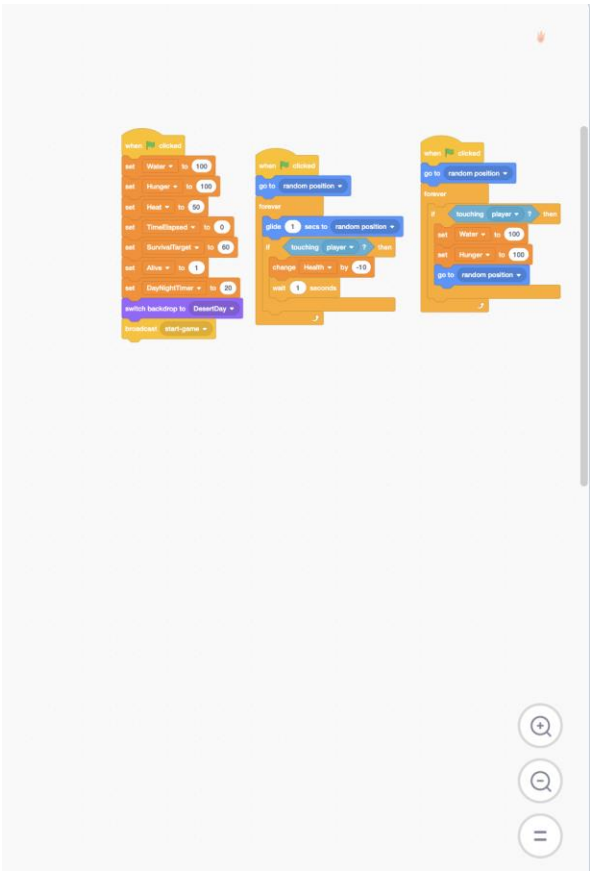
The simulation works successfully and demonstrates survival logic effectively. The project helps understand Scratch programming concepts clearly.

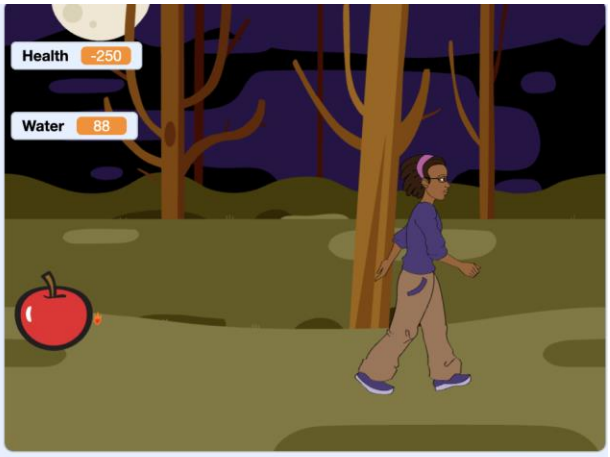
References

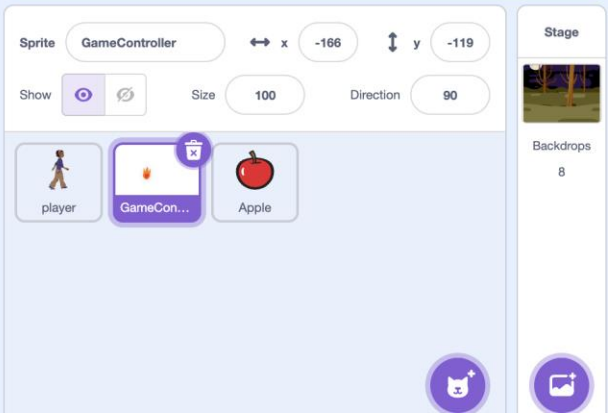
1. Scratch Official Website (scratch.mit.edu)

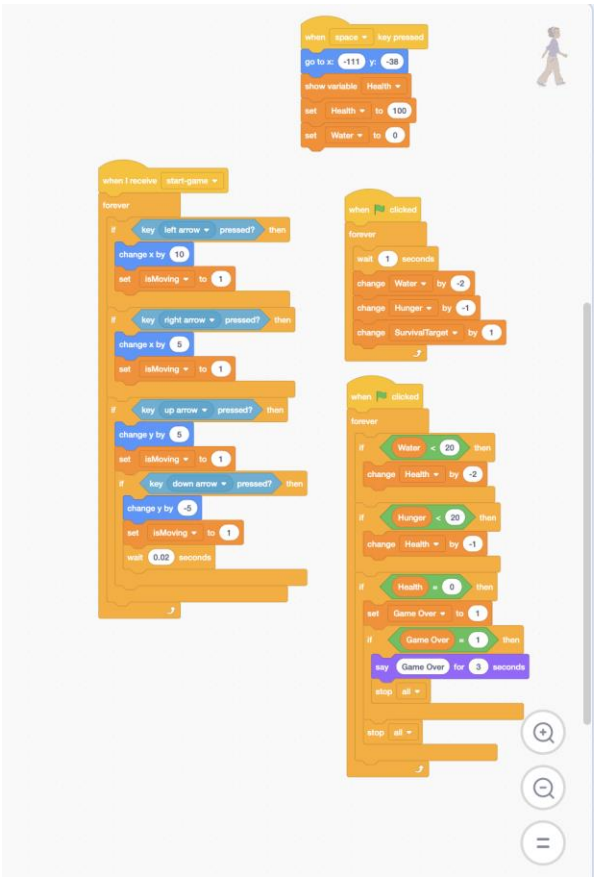
2. MIT Media Lab Scratch Documentation

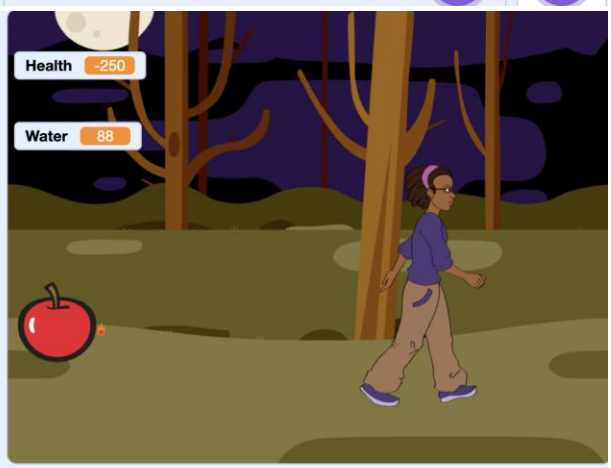


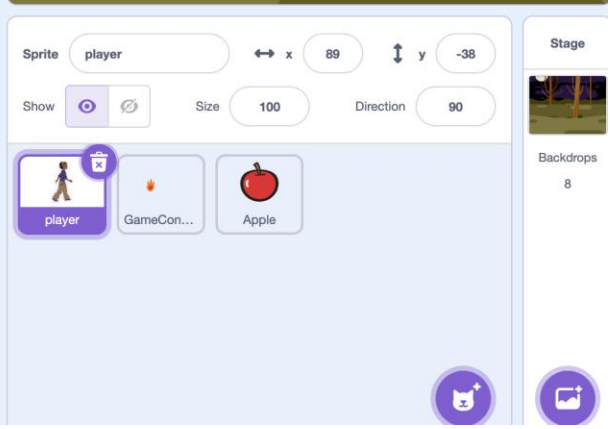

when clicked
set Water to 100
set Hunger to 100
set Heat to 50
set TimeElapsed to 0
set SurvivalTarget to 60
set Alive to 1
set DayNightTimer to 20
switch backdrop to DesertDay
broadcast start-game
when clicked
go to random position
forever
glide 1 secs to random position
if touching player ? then
change Health by -10
wait 1 seconds
when clicked
go to random position
forever
if touching player ? then
set Water to 100
set Hunger to 100
go to random position


Health -250
Water 88


Sprite GameController
x -166
y -119
Show
Size 100
Direction 90
player
GameCon...
Apple
Stage
Backdrops 8


when space key pressed
go to x: -111 y: -38
show variable Health
set Health to 100
set Water to 0
when I receive start-game
forever
if key left arrow pressed? then
change x by 10
set isMoving to 1
if key right arrow pressed? then
change x by -5
set isMoving to 1
if key up arrow pressed? then
change y by 5
set isMoving to 1
if key down arrow pressed? then
change y by -5
set isMoving to 1
wait 0.02 seconds
when clicked
forever
wait 1 seconds
change Water by -2
change Hunger by -1
change SurvivalTarget by 1
when clicked
forever
if Water < 20 then
change Health by -2
if Hunger < 20 then
change Health by -1
if Health = 0 then
set Game Over to 1
if Game Over = 1 then
say Game Over for 3 seconds
stop all
stop all


Health -250
Water 88


Sprite player
x 89
y -38
Show
Size 100
Direction 90
player
GameCon...
Apple
Stage
Backdrops 8