



CS4246/CS5446 PROJECT PRESENTATION

Group 32
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DUNGEONS AND DRAGONS (DnD)

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01

Background & Overview

What is DnD?

- Multi - Player
- Role player genre
- Character sheet
- Rule book
- Dice
- Combat



FAST CHARACTER

SRET THE SKULI

Barbarian 3 (Ancestral Guardian)
CLASS & LEVEL
Human
RACE/ANCESTRY//HERITAGE

972
EXPERIENCE PT
Soldier
BACKGROUND

STR +3 16
DEX +2 14
CON +2 15
INT -1 9
WIS +1 13
CHA +0 11

+2 PROFICIENCY BONUS

SAVING THROWS
+5 Strength Saves *
+2 Dexterity Saves
+4 Constitution Saves *
-1 Intelligence Saves
+1 Wisdom Saves
+0 Charisma Saves
* Prof. bonus added

SKILLS
+2 Acrobatics (Dex)
+3 Animal Handling (Wis) *
-1 Arcana (Int)
+5 Athletics (Str) *
+0 Deception (Cha)
-1 History (Int)
+1 Insight (Wis)
+2 Intimidation (Cha) *
-1 Investigation (Int)
+1 Medicine (Wis)
+1 Nature (Int) *
+1 Perception (Wis)
+0 Performance (Cha)
+0 Persuasion (Cha)
-1 Religion (Int)
+2 Sleight of Hand (Dex)
+2 Stealth (Dex)
+1 Survival (Wis)
* Prof. bonus added

HIT POINTS 32 **HIT DICE** 3d12

DEATH SAVES: Success O O O Fail O O O

WEAPON & UNARMED ATTACKS

Basic Attack. One target per Attack action.

Greataxe. *Melee Weapon Attack:* +5 to hit, reach 5 ft. *Hit:* 1d12+3 slashing damage. (Must be used two-handed.)

Handaxe. *Melee Weapon Attack:* +5 to hit, reach 5 ft. *Hit:* 1d6+3 slashing damage. (If thrown, normal range to 30 ft.; disadvantage long range 21 to 60 ft.)

Javelin. *Melee Weapon Attack:* +5 to hit, reach 5 ft. *Hit:* 1d6+3 piercing damage. (If thrown, normal range to 30 ft.; disadvantage long range 31 to 120 ft.)

MAGIC, FEATS & SPECIAL ATTACKS

Rage. Lasts 1 minute (10 rounds), or until unconscious, haven't attacked or been hit.

EQUIPMENT & TREASURE

Carried Gear (PHB, p. 143): greataxe, two (2) handaxes, five (5) javelins, explorer's pack (backpack; a bedroll, a mess kit, a tinderbox, 10 torches, 10 days' rations, waterskin, 50 feet of hempen rope on the side), gaming set (dice set),

How we got started?

- Basic skeletal repository
- 2 players
- Strahd (Strong randomised agent)
- Leotris (weak agent to be trained)



 [AndrewLim1990 / dungeonsNdata](#) Public

What we have done?

- Build an improved environment
- Added more characters
- Added more rules
- Implemented basic RL algorithms
- Improved Reward Function





02

Combat - Rules and Improvements

Rules



Combat

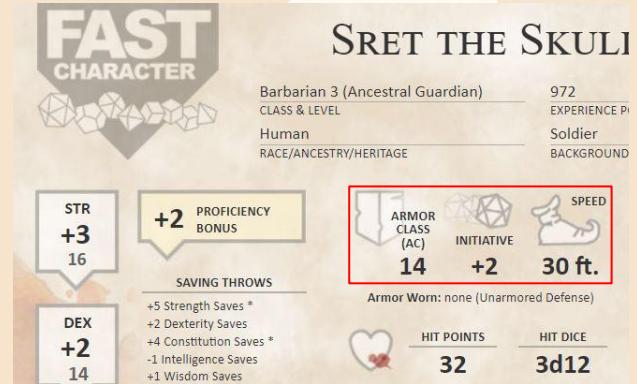
Players are often pit against lesser, weak enemies like goblins to monstrous creatures, like Dragons.

Combat is Turn-Based. To succeed in an attack, the sum of a d20 roll and attack modifiers should clear the AC of the enemy. Lady Luck often plays a role in deciding the fates and makes each encounter unique.



Order of Combat

1. Determine the position of each entity
2. Roll Initiative
3. Establish order of combat
4. Each entity takes turns. Per turn they can do:
 - a. 1 Action (Attack/Spell - Success determined by d20 roll + modifiers, must clear AC of opponent)
 - b. 1 Movement (upto max speed)
 - c. 1 Bonus Action (not considered)
5. Begin next round.
6. Continue till HP of opponent is 0



Greataxe. Melee Weapon Attack: +5 to hit,
reach 5 ft. Hit: 1d12+3 slashing damage.
(Must be used two-handed.)

Improvements

Attack of Opportunity

Every creature also has a Reaction per turn

If the enemy entity moves out your base range (5ft), a melee attack can be made right before the creature leaves the space

Also improved the movement set of each entity by adding the DoNotMove option



Advantage/Disadvantage

Some spells or attacks grant advantage/disadvantage on usage.

Advantage - Roll the d20 twice, take the higher of the roll

Disadvantage - Roll the d20 twice, take the lower of the roll

If a creature has both advantage and disadvantage on a turn, the effect is cancelled, they do a single roll

Reckless Attack - (Barbarian)

Starting at 2nd level, you can throw aside all concern for defense to attack with fierce desperation. When you make your first attack on your turn, you can decide to attack recklessly. Doing so gives you **advantage** on melee weapon attack rolls using Strength during this turn, but attack rolls against you have **advantage** until your next turn

Character Classes

Each character class has a different playstyle

Players also have the option of choosing a subpath at level 3 to make each character more unique

We have implemented 3 base Character classes (simpler version tuned to the environment) at level 3 :

- ◆ Ranger
 - ◆ Barbarian
 - ◆ Wizard

Barbarian Basic Rules	 A fierce warrior of primitive background who can enter a battle rage	Bard Basic Rules	 An inspiring magician whose power echoes the music of creation	Cleric Basic Rules	 A priestly champion who wields divine magic in service of a higher power
Hit Die: d12 Primary Ability: Strength Saves: Strength & Constitution	<a data-bbox="1107 339 1200 348" href="#">VIEW BARBARIAN DETAILS	Hit Die: d8 Primary Ability: Charisma Saves: Dexterity & Charisma	<a data-bbox="1376 339 1463 348" href="#">VIEW BARD DETAILS	Hit Die: d8 Primary Ability: Wisdom Saves: Wisdom & Charisma	<a data-bbox="1647 339 1726 348" href="#">VIEW CLERIC DETAILS
Druid Basic Rules	 A priest of the Faerie Fire, wielding the powers of nature and adopting animal forms	Fighter Basic Rules	 A master of martial combat, skilled with a variety of weapons and armor	Monk Basic Rules	 A master of martial arts, harnessing the power of the body in pursuit of physical and spiritual perfection
Hit Die: d8 Primary Ability: Wisdom Saves: Intelligence & Wisdom	<a data-bbox="1119 582 1188 591" href="#">VIEW DRUID DETAILS	Hit Die: d10 Primary Ability: Strength or Dexterity Saves: Strength & Constitution	<a data-bbox="1380 582 1457 591" href="#">VIEW FIGHTER DETAILS	Hit Die: d8 Primary Ability: Dexterity & Wisdom Saves: Strength & Dexterity	<a data-bbox="1651 582 1726 591" href="#">VIEW MONK DETAILS
Paladin Basic Rules	 A holy warrior bound to a sacred oath	Ranger Basic Rules	 A warrior who combats threats on the edges of civilization	Rogue Basic Rules	 A scoundrel who uses stealth and trickery to overcome obstacles and enemies
Hit Die: d10 Primary Ability: Strength & Charisma Saves: Wisdom & Charisma	<a data-bbox="1119 814 1188 825" href="#">VIEW PALADIN DETAILS	Hit Die: d10 Primary Ability: Dexterity & Wisdom Saves: Strength & Dexterity	<a data-bbox="1380 814 1457 825" href="#">VIEW RANGER DETAILS	Hit Die: d8 Primary Ability: Dexterity Saves: Dexterity & Intelligence	<a data-bbox="1651 814 1726 825" href="#">VIEW ROGUE DETAILS

Ranger

The ranger class is implemented with 2 attacks to choose from:

Ranged: Hand crossbow (*+5 to hit, 1d6+3 piercing damage, range 30*)

Melee: Shortsword (*+5 to hit, 1d6+3 piercing damage, range 5*)

Hunter's Mark: You choose a creature you can see within range and mystically mark it as your quarry. Until the spell ends, you deal an extra 1d6 (3) damage to the target whenever you hit it with a weapon attack.



HP: 28 AC: 14

Barbarian

Barbarians have the ability to rage as a bonus action that increases his damage bonus *Rage burns in every barbarian's heart, a furnace that drives him or her toward greatness.*

Rage: Damage bonus: +2, **Resistance** to physical damage
Resistance:
Reduces incoming damage by half

We have chosen to implement a Barbarian, with 2 attack

Melee: Axe (+6 to hit, 1d12+3 damage, range 5)
Reckless: Grant self **advantage** on turn, but enemy get **advantage** against you on their next turn



HP: 32 AC: 14

Wizard

A more nuanced class, with multiple playstyles. We have chosen a Path of the Evocation fire damage Wizard.

Spells: Wizards have a huge array of spells available to them (must be learnt), but can only prepare a limited amount per day to use. Spells vary in power (damage, utility) and are divided by levels

Spell Slots: Represents the number of spells a wizard can cast for a particular level, before he needs a long rest. Determined by character level
A level 3 wizard has 4 level 1 and 2 level 2 spell slots.

Cantrips: Low powered spells with infinite usage



HP: 16 AC: 11

Wizard - Spells

Cantrips (Level 0)

Fire Bolt: (+3 to hit, 1d10 fire damage, range 40)

Ray of Frost: (+3 to hit, 1d8 ice damage, range 15)

Level 1

Chromatic Orb: (+3 to hit, 3d8 fire damage, range 30)

Magic Missile: (+3 to hit, 3d4+3 damage, range 40,
auto-hit)

Level 2

Scorching Ray: (+3 to hit, 6d6 fire damage, range 30)

Aganazzar's Scorcher: (+3 to hit, 3d8 fire damage,
range 10, enemy disadvantage for 1 turn on hit)

Boss - Manticore

A CR 3 Monster with increased health and AC

We have chosen to implement 2 attack options:

Melee: Bite (+5 to hit, 1d8+5 damage, range 5)

Ranged: Tail Spike(+5 to hit, 1d8+3 damage, range 30, 10 spikes)



Note: Removed multiattack feature by taking higher health value and increased AC

HP: 95 AC: 16

Assumptions

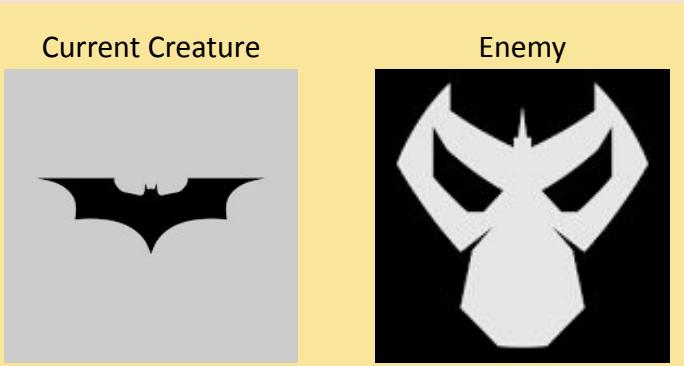
- We have chosen to stick with the initial grid, where each box represents 5 ft
- All entities have a constant speed of 30 ft each round that they take
- We have assumed constant terrain and no breaking of line of sight with objects in between
- Movement is only lateral, flying/ height not allowed



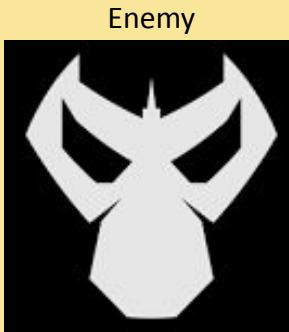
03

Modelling and Training

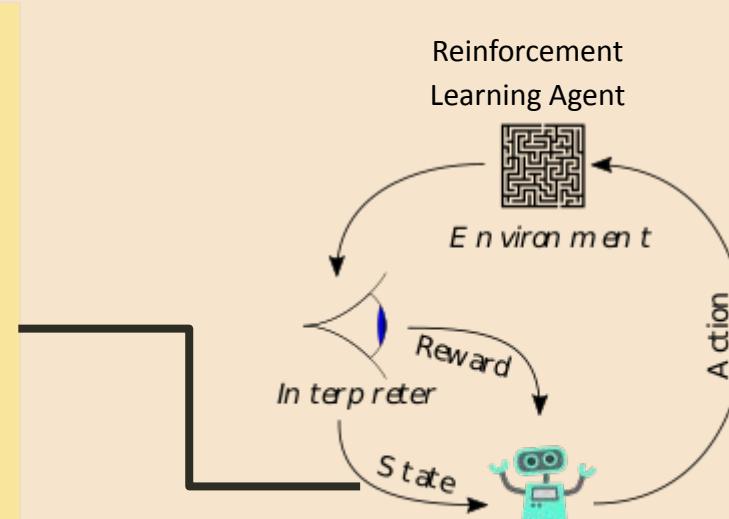
Why RL?



- Hit Point
- Position
- Attacks
- Movements
- Steps



- Hit Point
- Position



Agent

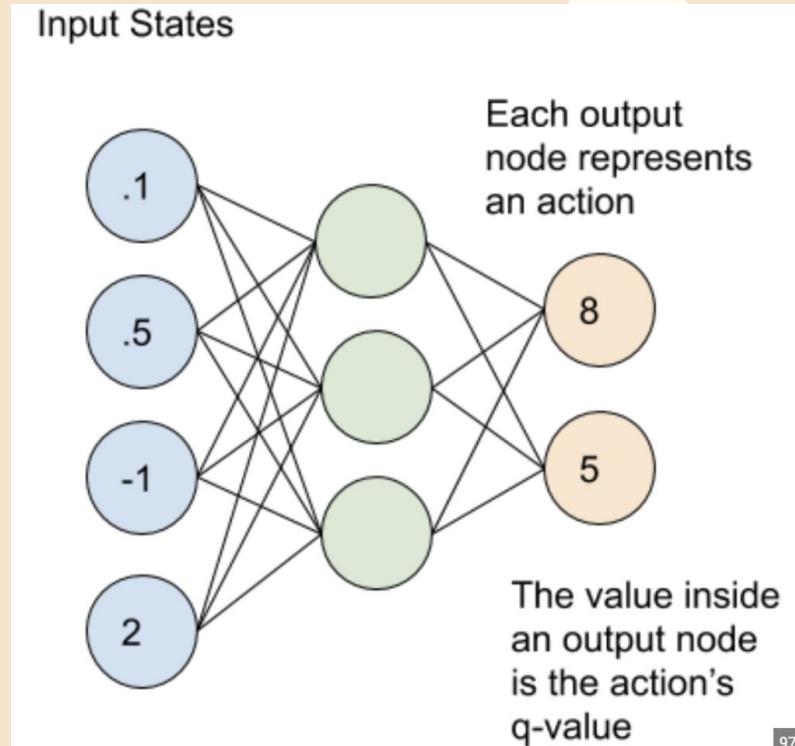
RL Algorithms - SARSA

- ❖ Experience-based
- ❖ Based on very simple policy update
- ❖ On-policy version of Q-learning
- ❖ State and action space was too large for SARSA to learn quickly

Updated Q Value	Current Q Value	Target Q Value	Current Q Value
$\underline{Q(s, a) = Q(s, a) + \alpha [r + \gamma Q(s', a') - Q(s, a)]}$			

RL Algorithms - DoubleDQN

- Q-learning - Off-policy updates of Q-function for each state, action pair
- DQN - Deep RL neural network used for Q-function approximation
- DoubleDQN - Another neural network is added to make DQN more adaptable and stable



RL Algorithms - PPO

- ❖ Recently created, efficient deep RL algorithm
- ❖ Our team added:
 - Enhanced (dense) reward function
 - Ability to load pre-trained PPO agent for better results

$$\frac{L^{PG}(\theta)}{\text{Policy Loss}} = \frac{E_t[\log \pi_\theta(a_t|s_t) * A_t]}{\frac{1}{T} \text{Expected log probability of taking that action at that state}}$$

Advantage if $A > 0$, this action is better than the other action possible at that state

Algorithm Comparison

RL Algorithm	RL Wizard vs. Random Manticore			RL Barbarian vs. Random Manticore			RL Ranger vs. Random Manticore		
	Leotris (RL)	Strahd (Random)	Timeout	Leotris (RL)	Strahd (Random)	Timeout	Leotris (RL)	Strahd (Random)	Timeout
Baseline (No RL)	39.4%	60.6%	0%	4.4%	92.8%	2.8%	23.2%	76.8%	0%
SARSA [1000 games]	27.9%	59.4%	12.7%	17.9%	0.5%	81.6%	34.4%	18.0%	47.6%
DoubleDQN [100 games]	18.0%	27.0%	55.0%	33.0%	5.0%	62.0%	27.0%	18.0%	55.0%
PPO (Sparse) [500 games]	51.8%	48.2%	0.0%	43.8%	24.0%	32.2%	69.0%	31.0%	0.0%
PPO (Dense) [500 games]	62.8%	36.8%	0.4%	75.2%	10.6%	14.2%	79%	20.6%	0.4%
PPO (Dense) [10k games]	90.3%	9.7%	0	95.4%	4.6%	0	97.2%	2.8%	0

04

Results and Rewards



Sample Log File

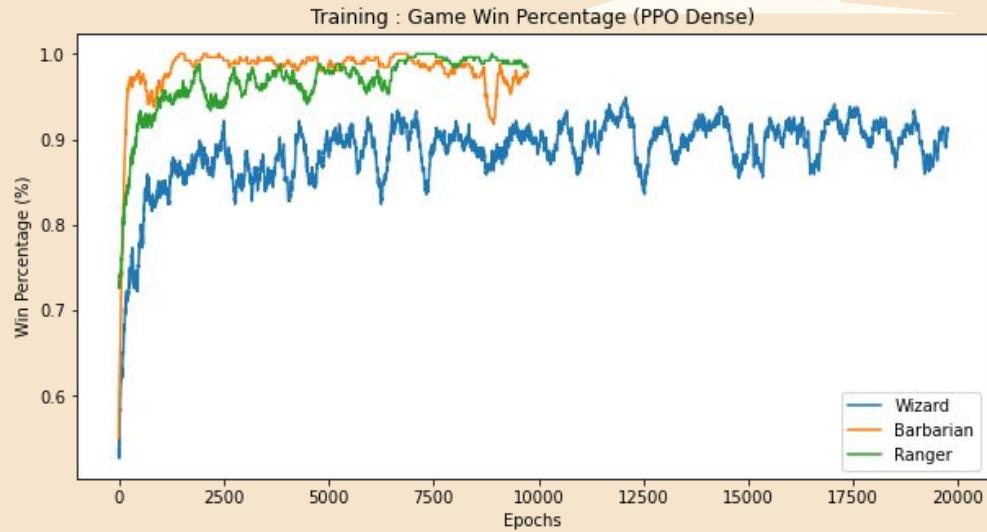
```
INFO:RUNNER:(BEGIN RUNNING FOR ', 500, '2022-11-09T19:24:12.919265')
INFO:COMBAT_HANDLER:(TURN ORDER FOR GAME : ', [['Strahd', 17], ['Leotris', 5]])
INFO:COMBAT_HANDLER:BEGIN COMBAT
INFO:COMBAT_HANDLER:    ROUND : 0
INFO:COMBAT_HANDLER:        START STATES FOR CREATURES:
INFO:COMBAT_HANDLER:            START STATES FOR : Strahd', tensor([[1.0000, 1.0000, 0.1000, 0.1000, 0.1000, 0.2000,
INFO:COMBAT_HANDLER:                HITPOINTS : 95/95
INFO:COMBAT_HANDLER:            START STATES FOR : Leotris', tensor([[1.0000, 1.0000, 0.1000, 0.2000, 0.1000, 0.1000
INFO:COMBAT_HANDLER:                HITPOINTS : 16/16
INFO:COMBAT_HANDLER:        ROUND START
INFO:COMBAT_HANDLER:            CREATURE PLAYING : Strahd
INFO:ACTION_HANDLER:                INVALID MOVE: None
INFO:COMBAT_HANDLER:                    move_up gave reward of 0
INFO:ACTION_HANDLER:                        VALID MOVE: {'old_location': array([5, 5]), 'new_location': array(
INFO:COMBAT_HANDLER:                            move_right gave reward of 0
INFO:ACTION_HANDLER:                                VALID MOVE: {'old_location': array([10, 5]), 'new_location': arra
INFO:COMBAT_HANDLER:                            move_up gave reward of 0
INFO:ACTION_HANDLER:                                VALID ATTACK: {'type': <class 'actions.Attack'>, 'source_creature'
INFO:COMBAT_HANDLER:                            Bite gave reward of 0
INFO:ACTION_HANDLER:                                VALID MOVE: {'old_location': array([10, 10]), 'new_location': arra
INFO:COMBAT_HANDLER:                            move_down gave reward of 0
INFO:ACTION_HANDLER:                                INVALID MOVE: None
INFO:COMBAT_HANDLER:                            move_down gave reward of 0
INFO:COMBAT_HANDLER:                            end_turn gave reward of 0
INFO:COMBAT_HANDLER:            CREATURE PLAYING : Leotris
INFO:ACTION_HANDLER:                VALID MOVE: {'old_location': array([ 5, 10]), 'new_location': array(
INFO:COMBAT_HANDLER:                    do_not_move gave reward of 0
```

Reward Functions

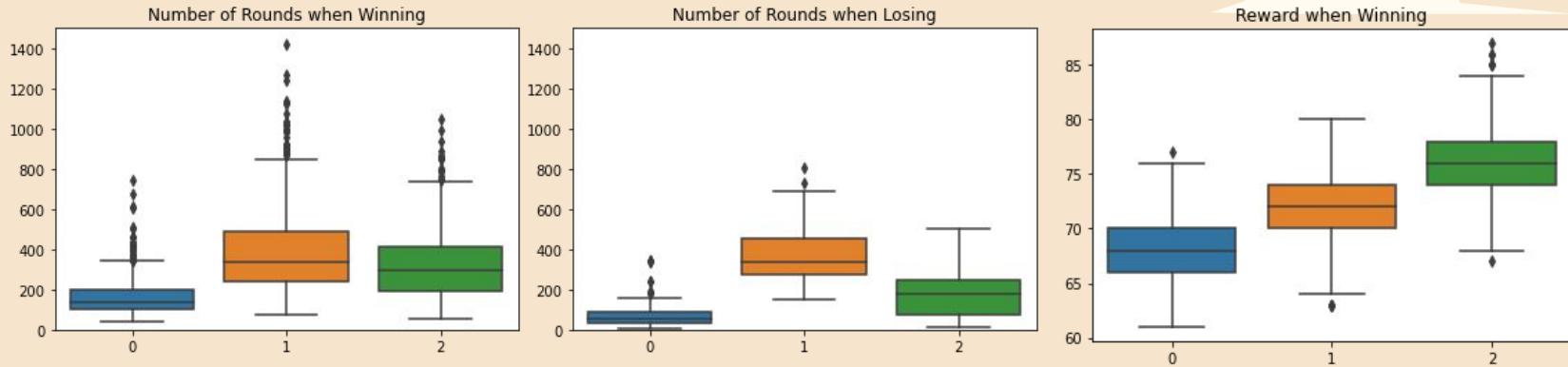
Reward Function Iteration	Win/Lose	Damage Taken/Received	Time Taken	Invalid Moves
0	+5/-5 (+10/-5)	-	-	-
1	+50/-50	+1/-1	-	-
2 (Winter Break)	+50/-50	+1/-1	Decaying rewards for win/lose based on number of rounds	-
3 (Winter Break)	+50/-50	+1/-1	Decaying rewards for win/lose based on number of rounds	Penalty for trying invalid moves

Proximal Policy Optimization - Final Runs

- Wizard was trained for longer due to character complexity
- Still fluctuating for Wizard and Barbarian though Ranger seems to have converged
- Longer runs might provide better insights



Fun Insights into the models



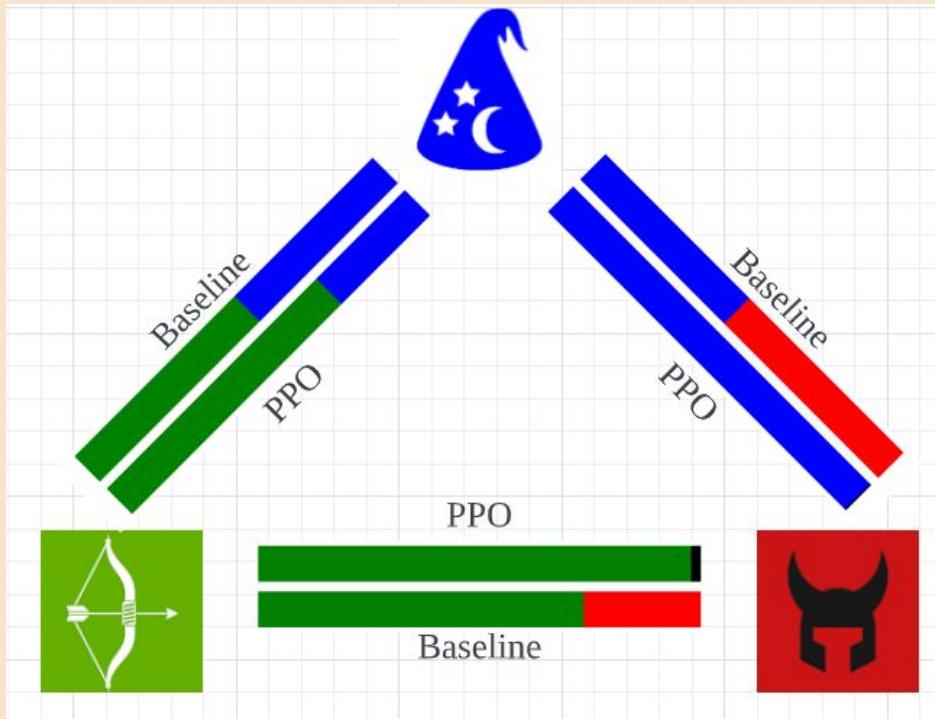
Barbarian wins/loses in a similar move range. Wizards and Rangers lose faster if they make a wrong move

Ranger usually gets the highest reward in a win

Wizard can win the fastest (42 in saved simulation) but a run gave us a win in 36. But also loses the fastest

0 = Wizard; 1=Barbarian; 2=Ranger

Player Vs Player Combat



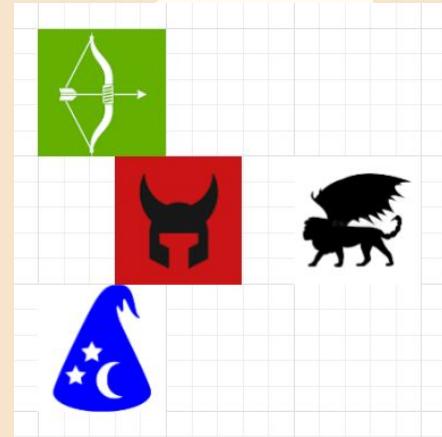
05

Conclusion



Learnings

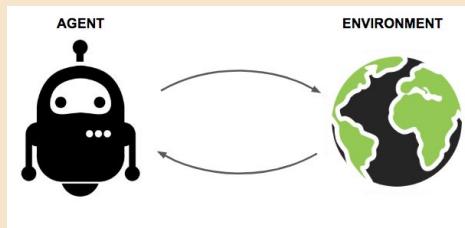
- Understood the advantages of a defined environment
- Identified the better algorithm based on our runs
- Enhanced the Environment to get a lot closer to DnD 5e
- Worked on denser reward functions
- Created Function to reload and retrain models from the base environment
- Created a Simulator for both Player Vs Monster and Player Vs Player



Limitations



Basic Environment



Model Improvements



Missing Multiplayer Vs Boss



Conclusion



Thank You

CREDITS: This presentation template was created by **Slidesgo**, including icons by **Flaticon**, infographics & images by **Freepik**





06

Appendix

Team Members

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S Dinesh Raj : A0227252L

Prakash Vikrant : A0227630L

Ranger



STR +1 13	+2 PROFICIENCY BONUS
DEX +3 16	SAVING THROWS
CON +2 14	+3 Strength Saves * +5 Dexterity Saves * +2 Constitution Saves -1 Intelligence Saves +2 Wisdom Saves +0 Charisma Saves * Prof. bonus added
INT -1 9	SILLS
WIS +2 15	+3 Acrobatics (Dex) +4 Animal Handling (Wis) +1 Arcana (Int) +1 Athletics (Str) +2 Deception (Cha) * -1 History (Int) +2 Insight (Wis) +0 Investigation (Int) +2 Medicine (Wis) -1 Nature (Int) +4 Perception (Wis) * +0 Performance (Cha) +0 Persuasion (Cha) -1 Religion (Int) +3 Sleight of Hand (Dex) +5 Stealth (Dex) * +4 Survival (Wis) * * Prof. bonus added
CHA +0 11	14 PASSIVE WISDOM (PERCEPTION)

PROFICIENCIES & LANGUAGES

Armor: light armor, medium armor, shields
 Weapons: simple weapons, martial weapons
 Tools: gaming set (dice set), thieves' tools
 Saving Throws: Strength, Dexterity
 Skills: Animal Handling, Deception, Perception, Stealth, Survival
 Languages: Common, Draconic, Sylvan

ENCUMBRANCE

Lifting & Carrying: 195 lbs. max. carrying capacity: 390 lbs. pushing or dragging (speed -5 ft.); 390 lbs. max. lift.

KONSTANTINE HOSK

Ranger 3 (Hunter)
 CLASS & LEVEL
 Human
 RACE/ANCESTRY/HERITAGE

936
 EXPERIENCE POINTS
 Criminal
 BACKGROUND
 r
 PLAYER NAME
 CAMPAIGN or PLAYER ID



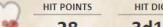
INITIATIVE
14 +3

30 ft.

Armor worn: leather armor



HIT POINTS
28



HIT DICE
3d10

DEATH SAVES: Success: O O O Fail: O O O

WEAPONS & UNARMED ATTACKS

Basic Attack. One target per Attack action.

Swordshort, Melee Weapon Attack: +5 to hit, reach 5 ft. Hit: 1d6+3 piercing damage.

Scimitar, Melee Weapon Attack: +5 to hit, reach 5 ft. Hit: 1d6+3 slashing damage.

Hand Crossbow, Ranged Weapon Attack: +5 to hit, range 30 ft., disadvantage long range 31 to 120 ft. Reloading limits to only one attack per round regardless of extra attacks.)

MAGIC, FEATS & SPECIAL ATTACKS
Fighting Style: Two-Weapon Fighting. Add ability modifier to damage of second weapon's hits.

EQUIPMENT & TREASURE

Carried Gear [PHB, p. 481]: leather armor (AC 11), shortsword, two (2) shortswords, hand crossbow and 20 bolts, longbow and 20 arrows, belt pouch, crowbar, set of dark common clothes with a hood. (This load is about 36 lbs.; add 1 lb. per 50 coins carried.)

Coins & Gems: 11 gold pieces (gp); 14 silver pieces (sp); 25 copper pieces (cp); 4 gems (worth 10 gp each)

FEATURES, TRAITS & MORE
 Alignment: Chaotic Neutral. I follow my shifting whims with little concern about rules or later consequences.

Criminal Background [PHB p. 129]

- Feature: Criminal Contact.
- Traits: Used to smuggle forbidden magics. In love with a demon.
- Ideal: Puts friends before crimes.
- Bond: Gives money to orphans.
- Flaw: Greed wins over smartness.

Human Traits [PHB p. 20]

- Creature Type: Humanoid
- Age: 21 years old
- Medium Size (5' 5", 164 lbs.)

Ranger Class Features [PHB p. 90]

- Favored Enemy: Fey (adv. on Survival checks to track, Intelligence to recall lore)
- Natural Explorer: +1 proficiency bonus on Wisdom and Intelligence on favored terrain)
- Primal Awareness (spell slots to sense creatures in 1 mile, or 6 miles in favored terrain)
- Hunter's Prey: Giant Killer (free attack when Large or larger foe misses within 5 feet)

Barbarian



STR +3 16	DEX +2 14	CON +2 15	INT -1 9	WIS +1 13	CHA +0 11
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PROFICIENCIES & LANGUAGES

Armor: light armor, medium armor, shields

Weapons: simple weapons, martial weapons

Tools: gaming set (dice set), vehicles (land craft)

Saving Throws: Strength, Constitution

Skills: Animal Handling, Athletics, Intimidation, Nature

Languages: Common, Goblin

ENCUMBRANCE

Lifting & Carrying: 240 lbs. max. carrying capacity; 480 lbs. pushing or dragging (speed -5 ft.); 480 lbs. max. lift.

SRET THE SKULLSPLITTER

Barbarian 3 (Ancestral Guardian)

CLASS & LEVEL

Human

RACE/ANCESTRY/HERITAGE

972

EXPERIENCE POINTS

Soldier

BACKGROUND

PLAYER NAME

CAMPAIGN OR PLAYER ID

ARMOR CLASS (AC) 14	INITIATIVE +2	SPEED 30 ft.
--	--------------------------------	-------------------------------

Armor worn: none (Unarmored Defense)

HIT POINTS 32	HIT DICE 3d12
--------------------------------	--------------------------------

DEATH SAVES: Success O O O Fail O O O

WEAPON & UNARMED ATTACKS

Basic Attack: One target per Attack action.

GREATAXE, MELEE WEAPON ATTACK: +5 to hit, reach 5 ft. Hit: 1d6+3 slashing damage. (Must be used two-handed.)

HANDAXE, MELEE WEAPON ATTACK: +5 to hit, reach 5 ft. Hit: 1d6+3 slashing damage. (If thrown, normal range to 20 ft.; disadvantage long range 21 to 60 ft.)

JAVELIN, MELEE WEAPON ATTACK: +5 to hit, reach 5 ft. Hit: 1d6+3 piercing damage. (If thrown, normal range to 30 ft.; disadvantage long range 31 to 120 ft.)

MAGIC, FEATS & SPECIAL ATTACKS

RAGE: Lasts 1 minute (10 rounds), or until unconscious, haven't attacked or been hit

EQUIPMENT & TREASURE

Carried Gear [PHB, p. 143]: greataxe, two (2) handaxes, five (5) javelins, explorer's pack (backpack, a bedroll, a mess kit, a tinderbox, 10 torches, 10 days' rations, waterskin, 50 feet of hempen rope on the side), gaming set (dice set), lantern, set of common clothes, an insignia of rank, trophy taken from fallen enemy. (This load is about 83 lbs.; add 1 lb. per 50 coins carried.)

Coins & Gems: 4 gold pieces (gp); 23 silver pieces (sp); 10 copper pieces (cp); 2 gems (worth 10 gp each)

FEATURES, TRAITS & MORE

Alignment: Chaotic Neutral. I follow my shifting whims with little concern about rules or later consequences.

Soldier Background [PHB p. 140]

- Feature: Military Rank.
- Traits: Fought against an orc horde. Soft-spoken voice.
- Ideal: Duty to liege and subjects.
- Bond: Unit rival outranks you.
- Flaw: Steals supplies from civilians.

Human Traits [PHB p. 29]

- Creature Type: Humanoid
- Age: 28 years old
- Medium Size (6' 4", 210 lbs.)

Barbarian Class Features [PHB p. 46, XTE p. 9]

- Rage (3/day)
- Unarmored Defense (AC)
- Ancestral Protectors (spirits mark target)
- Danger Sense (adv Dex vs. traps)

Rage Effects [PHB p. 48]

- Advantage on STR checks and saves
- +2 bonus on STR-based melee damage
- Resistance (half damage) from bludgeoning, piercing and slashing damage.

Wizard



STR
+0
11

DEX
+2
14

CON
+2
15

INT
+3
16

WIS
+1
13

CHA
-1
9

+2 PROFICIENCY
BONUS

SAVING THROWS
+0 Strength Saves
+2 Dexterity Saves
+2 Constitution Saves
+5 Intelligence Saves *
+3 Wisdom Saves *
-1 Charisma Saves
* Prof. bonus added

SILLS
+4 Acrobatics (Dex) *
+1 Animal Handling (Wis)
+5 Arcana (Int) *
+0 Athletics (Str)
+1 Deception (Cha)
+5 History (Int) *
+1 Insight (Wis)
-1 Intimidation (Cha)
+3 Investigation (Int)
+1 Medicine (Wis)
+3 Nature (Int)
+1 Perception (Wis)
+1 Performance (Cha)
+3 Religion (Int)
+2 Sleight of Hand (Dex)
+2 Stealth (Dex)
+1 Survival (Wis)

WEAPON & UNARMED ATTACKS
Basic Attack. One target per Attack action.

Dagger. Melee or Ranged Weapon Attack:
-4 to hit, reach 5 ft. 1d4+ piercing
damage. (If thrown, normal range to 20 ft.; disadvantage long range 21 to 60 ft.)

Dagger (offhand as bonus action). As above but
only 1d4 piercing damage.

Quarterstaff. Melee Weapon Attack: +2 to hit,
reach 5 ft. Hit: 1d6+0 bludgeoning damage.
(If used two-handed in melee, does 1d8+0
damage.)

MAGIC, FEATS & SPECIAL ATTACKS
Ray Of Frost Cantrip. Ranged Spell Attack: +5 to
hit, targets one creature or object within 60
ft. range. Hit: 1d8 cold damage and target's
speed reduced by 10 feet for one round.

EQUIPMENT & TREASURE
Carried Gear [PHB, p. 143]: two (2) daggers,
quarterstaff, belt pouch, set of common clothes,
set of costume clothes, a musical instrument, an
admirer's love letter. (This load is about 13 lbs.;
add 1 lb. per 50 coins carried.)

Coins & Gems: 12 gold pieces (gp); 18 silver
pieces (sp); 75 copper pieces (cp); 3 gems (worth
10 gp each)

PROFICIENCIES & LANGUAGES
Armor: none
Weapons: dagger, dart, light crossbow,
quarterstaff, sling
Tools: disguise kit, musical instrument (lute)
Saving Throws: Intelligence, Wisdom
Skills: Acrobatics, Arcana, History,
Performance
Languages: Common, Goblin

ENCUMBRANCE
Lifting & Carrying: 165 lbs. max. carrying
capacity; 330 lbs. pushing or dragging (speed
-5 ft.); 330 lbs. max. lift.

HUGE OF PLAGUE-MORT

Wizard 3 (Evoker)

CLASS & LEVEL

Human

RACE/ANCESTRY/HERITAGE

927

EXPERIENCE POINTS

Entertainer

BACKGROUND

R

PLAYER NAME

CAMPAGN or PLAYER ID



Armor Worm: none

HIT POINTS
20
HIT DICE
3d6

DEATH SAVES: Success O O O Fail O O O

FEATURES, TRAITS & MORE

Alignment: Neutral. I will help others, but
avoids serious personal risks or loyalties
that don't benefit me.

Entertainer Background [PHB p. 110]

- Features: By Popular Demand.
- Traits: Known every song and tale ever
made. Flirtatious toward strangers.
- Ideal: Lies can reveal truths.
- Bond: Many fans among elves.
- Flaw: Forgets words when drunk.

Human Traits [PHB p. 29]

- Creature Type: Humanoid
- Age: 26 years old
- Medium Size (2' 7", 18 lbs.)

Wizard Class Features [PHB p. 112]

- Ritual Casting
- Arcane Recovery (regain spell slots totalling
2 levels after short rest once per day)
- Evocation Savant (copy such spells in half
the time)
- Sculpt Spells (exclude 1 + spell's level
targets from effect of evocation spell)

Spellcasting [PHB p. 101]



Spell Attack Modifier +5
Spell Save DC 13

Cantrips Known: *Dancing Lights*,
Minor Illusion, *Ray of Frost*

Prepared Spells

1st Level (4 slots): *Mage Armor*, *Magic Missile*, *Witch Bolt*, *Detect Magic*, *Charm Person*

2nd Level (2 slots): *Melf's Acid Arrow*

Cantrips

FIRE BOLT

CASTING TIME	RANGE
1 action	120 feet
COMPONENTS	DURATION
V,S	Instantaneous

You hurl a mote of fire at a creature or object within range. Make a ranged spell attack against the target. On a hit, the target takes 1d10 fire damage. A flammable object hit by this spell ignites if it isn't being worn or carried. This spell's damage increases by 1d10 when you reach 5th level (2d10), 11th level (3d10), and 17th level (4d10).

Wizard

Evocation cantrip

RAY OF FROST

CASTING TIME	RANGE
1 action	60 feet
COMPONENTS	DURATION
V,S	Instantaneous

A frigid beam of blue-white light streaks toward a creature within range. Make a ranged spell attack against the target. On a hit, it takes 1d8 cold damage, and its speed is reduced by 10 feet until the start of your next turn. The spell's damage increases by 1d8 when you reach 5th level (2d8), 11th level (3d8), and 17th level (4d8).

Wizard

Evocation cantrip

Level 1

CHROMATIC ORB

CASTING TIME	RANGE
1 action	90 feet
COMPONENTS	DURATION
V, S, M	Instantaneous

a diamond worth at least 50 gp

You hurl a 4-inch-diameter sphere of energy at a creature that you can see within range. You choose acid, cold, fire, lightning, poison, or thunder for the type of orb you create, and then make a ranged spell attack against the target. If the attack hits, the creature takes 3d8 damage of the type you chose.

At Higher Levels: When you cast this spell using a spell slot of 2nd level or higher, the damage increases by 1d8 for each slot level above 1st.

At Higher Levels: When you cast this spell using a spell slot of 2nd level or higher, the damage increases by 1d8 for each slot level above 1st.

Wizard

1st level Evocation

MAGIC MISSILE

CASTING TIME	RANGE
1 action	120 feet
COMPONENTS	DURATION
V,S	Instantaneous

You create three glowing darts of magical force. Each dart hits a creature of your choice that you can see within range. A dart deals $1d4+1$ force damage to its target. The darts all strike simultaneously and you can direct them to hit one creature or several.

At Higher Levels: When you cast this spell using a spell slot of 2nd level or higher, the spell creates one more dart for each slot above 1st.

Wizard

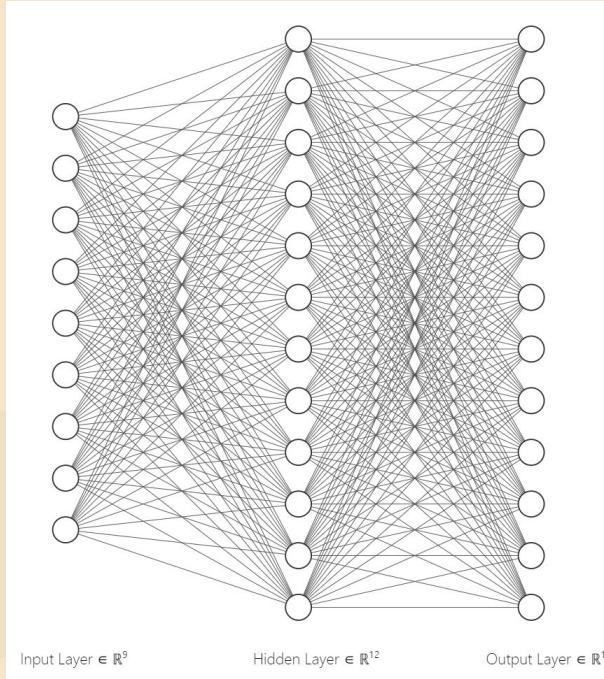
1st level Evocation

Level 2

AGANAZZAR'S SCORCHER		SCORCHING RAY	
CASTING TIME	RANGE	CASTING TIME	RANGE
COMPONENTS	DURATION	COMPONENTS	DURATION
V, S, M	Instantaneous	V, S	Instantaneous
<p><i>a red dragon's scale</i></p> <p>A line of roaring flame 30 feet long and 5 feet wide emanates from you in a direction you choose. Each creature in the line must make a Dexterity saving throw. A creature takes 3d8 fire damage on a failed save, or half as much damage on a successful one.</p> <p>At Higher Levels: When you cast this spell using a spell slot of 3rd level or higher, the damage increases by 1d8 for each slot level above 2nd.</p>			
Wizard (XGE)	2nd level Evocation	Wizard	2nd level Evocation

Wizard PPO Models

Actor Layer



Critic Layer

