

# The wizarding world of Harry Potter

Python W200 Project Assignment

## Introduction:

The project is based on famous book series “Harry Potter” written by J.K Rowling. Harry Potter is the boy wizard who survived the brutal attack by Voldemort when he was still a baby. His mother died protecting Harry, and the encounter left Voldemort weakened. Voldemort is back with full powers and wants to take a revenge and kill Harry. Harry must kill Voldemort before he kills him. Harry learnt that Voldemort had created 6 Horcruxes. A horcrux is a part of soul and life that gets separated and stored in an object.



## Game Objective:

Dumbledore has already destroyed one horcrux (Marvolo Gaunt's Ring). Harry must destroy 5 horcruxes before Voldemort can be killed. The game objective is to capture the horcruxes, then get into a duel with Voldemort and win.

## 5 Horcruxes to be killed:

1. Tom Riddle's Diary
2. Salazar Slytherin's Locket
3. Helga Hufflepuff's cup
4. Rowena Ravenclaw's diadem
5. Nagini the snake

Main battle with Voldemort will commence after capturing the above 5 horcruxes.

## Game progression:

Each horcrux is a stage in the game. Harry must clear 5 stages before having a final duel with Voldemort

### **Horcrux-1 (Tom Riddle's Diary):**

#### **Objective: Duel with Antonin Dolohov (Death eater)**

For list of spells, see the spells section.

#### Duel:

- 9 Spells are given (User does not know the power of spells)
- Dolohov will pick the spells randomly
- Each spell has a limit on number of times one can be used.

Successful completion will get Harry bonus health points

### **Horcrux-2 (Salazar Slytherin's Locket):**

#### **Objective: Duel with Bellatrix Lestrange**

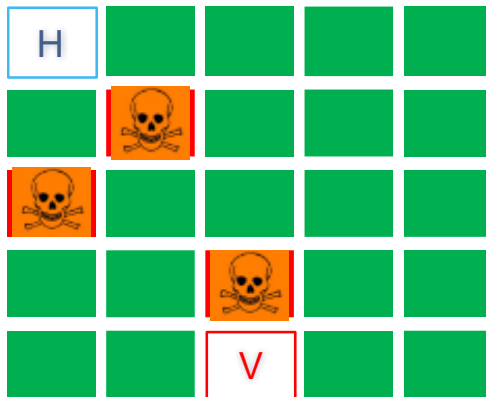
Same as above. Bellatrix is more powerful wizard than Dolohov and has more than 1 life.

Upon completing stage-2, Harry gets additional 2000 points in health

### **Horcrux-3 (Helga Hufflepuff's cup):**

**Objective: Pass the minefield to collect the cup**

Harry is in a 5x5 board and he need to reach “V” to get the Horcrux. He can go one step down (or) one step horizontal and one step down. Below map shows obstacles that will kill Harry (It will not be shown to the user).



Maximum 2 tries are allowed.

After unsuccessful attempt in 1<sup>st</sup> try, 500 health points are deducted.

After unsuccessful attempt in 2<sup>nd</sup>, game is over.

A successful attempt will fetch a 2000 health points.

If 1<sup>st</sup> attempt is successful, user gets an additional life

### **Horcrux-4 (Rowena Ravenclaw's diadem):**

**Objective: Pass the super-minefield to collect the diadem**

This mine field is more difficult due to 7x7 matrix. It looks like below:



Maximum 2 tries are allowed.

After unsuccessful attempt in 1<sup>st</sup> try, 500 health points are deducted.

After unsuccessful attempt in 2<sup>nd</sup>, if there is no additional life, game is over. Else, 500 health points deducted

If there is additional life, user is allowed 3<sup>rd</sup> attempt. If failed, game is over.

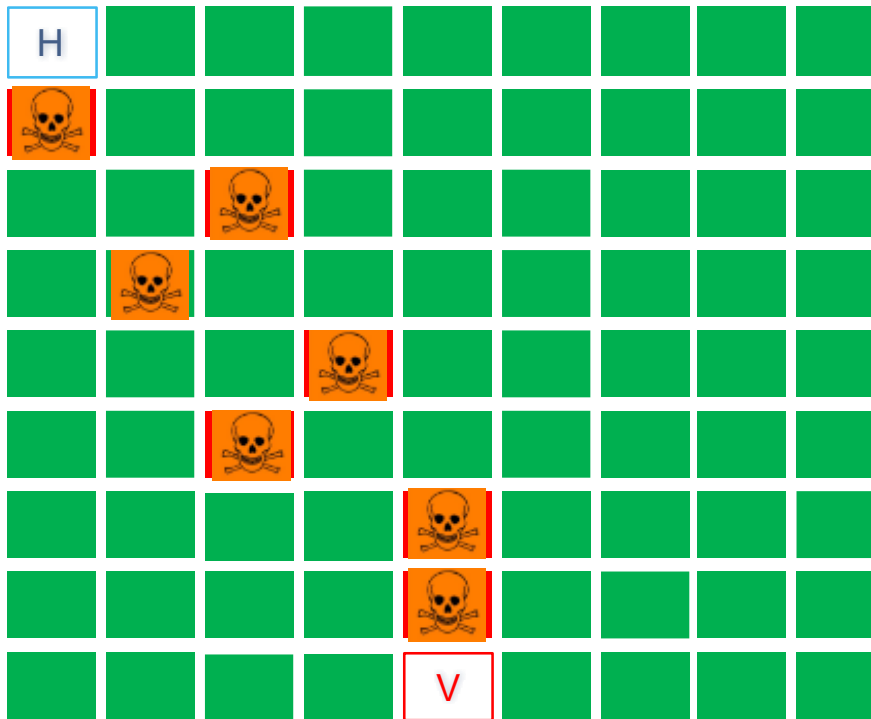
A successful attempt will fetch 3000 health points.

A successful attempt in first iteration will get additional life.

### **Horcrux-5 (Nagini, the snake):**

**Objective: Pass the ultra-minefield to kill Nagini**

This one takes the user to a 9x9 matrix, with only few paths allowed.



Maximum 2 tries are allowed.

After unsuccessful attempt in 1<sup>st</sup> try, 500 health points are deducted.

After unsuccessful attempt in 2<sup>nd</sup>, if there is no additional life, game is over. Else, 500 health points deducted

If there is additional life, user is allowed 3<sup>rd</sup> attempt. if there is no additional life, game is over. Else, 500 health points deducted

If there is additional life, user is allowed 4<sup>th</sup> and final attempt.

A successful attempt will fetch 3000 health points.

A successful attempt in first iteration will get additional life.

## **FINAL FRONTIER: Kill VOLDEMORT**

### **Objective: Kill Voldemort in Duel**

#### **Duel with Voldemort:**

- 9 Spells are given (User does not know the power of spells)
- Voldemort also fires spells (The spell order from Voldemort is random)
- Upon firing each spell, a damage is done. If Harry's health < 0, Harry is dead.
  - If Harry has additional life, duel restarts with previous health . A min health of 1000 is maintained in each life.
- If Voldemort's health < 0, Voldemort is dead. Voldemort has 3 default additional lives. So, the duel repeats.

## Spells and their damage:

The strength of each spell is dependent on Wizard's ability and skillset. Also, the power of each spell varies. There are 4 unforgivable curses (Avada Kedavra, Sectum Sempra, Crucio and Imperio) that has higher damage power. The *Avada Kedavra* curse, for example, is far more dangerous than *Stupify* Curse. However, extremely powerful spells are beyond the ability of most witches and wizards. To restrict the usage of more powerful spells, user will be allowed to use it only for limited number of times.

Note: The values noted below are indicative only. They can be changed in the final code.

Spell	Max usage	Damage
<i>Avada Kedavra</i>	1	1000
<i>Sectum Sempra</i>	3	500
<i>Crucio</i>	3	300
<i>Aguamenti</i>	10	10
<i>Confringo</i>	10	50
<i>Oppugno</i>	10	50
<i>Tarantallegra</i>	10	50
<i>Stupify</i>	10	15
<i>Imperio</i>	3	200

## Selecting Wands:

As the old saying goes, the wizard does not pick the wand, it's the wand that chooses the wizard. Wand's power depends on who is holding it. Below damage details are not visible to the user. User is asked to pick the wand from below list and will proceed to the game.

Note: The values are indicative only. It can be changed in the final code implementation

Wand	Damage Magnification
Phoenix Feather, 11" (Potter's Wand)	2X
Thestral tail core, 15" (Elder Wand - Dumbledore)	3X
Dragon heartstring, 18" (Voldemort Wand)	0.5x (Reduction)
Hawthorn 10" (Malfoy wand)	0.5x (Reduction)
Mahogany 11" (James Potter Wand)	1X
Walnut, 12.75" (Bellatrix Lestrange Wand)	0.5x (Reduction)

## Classes :

- **Duel**

- Attributes:
  - *SpellList* (List of spells fetched from a json file)
  - *Wizard1*
  - *Wizard2*
- Methods:
  - `__init__`
  - `spell_selector` (Asks user to select a spell for Harry)
  - `random_spell_selector` (Selects random spell for the death eater)
  - `get_spell_damage` (Gets the damage for a given spell)
  - `take_damage` (Finds out how much damage a wizard takes based on a given spell. Also checks for pending lives)

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- **Wizard**

- Attributes:
  - *Health* (Determines the health of the object. Dead if Health = 0)
  - *Life* (Number of lives pending). You can get extra life by collecting some trophy element
  - *Wand* (Type of wand determines the power of spells)
  - *Stage* (What stage of the game wizard is in)
  - *Name* (ID)
  - *Alias* (First name)
  - *Position* (Position in the minefield)
  - *Wand\_multiplier* (Depending on the wand, the power of spell is multiplied)
- Methods:
  - `__init__`
  - `select_wand` (Selects the wand for Harry)
  - `__str__`

- **Board:**

- Attributes:
  - *Size*
  - *Wizard\_id*
  - *Position*
  - *number\_of\_attempts*
  - *BoardList*
  - *WizardList*
- Methods:
  - `__init__`
  - `reset_position` (Resets the minefield board)
  - `insert_wizard` (Inserts wizard in the field)
  - `insert_bombs` (Inserts bombs in the minefield)

- make\_move (Makes one move in the minefield. Checks if the wizard stepped on the bomb, or reached final destination)
  - print\_board
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- **Global methods:**
  - make\_move\_in\_loop (Moves the wizard in a loop until the end)
  - Stage1 (Duel with Dolohov)
  - Stage2 (Duel with Bellatrix)
  - Stage3 (Minefield 5x5)
  - Stage4 (Minefield 7x7)
  - Stage5 (Minefield 9x9)
  - Stage6 (Duel with Voldemort)
  - Main() : Main function to initiate the stages