

# **Paithon's Gacha!**

## **A Paithon-guide to victory!**

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### **I. Problem Statement**

We noticed that scholars love playing games, but they don't enjoy creating games as much, more specifically, in Python. We also noticed that many of them love gacha games. We tried to think of a creative way to implement learning Python concepts while playing games, so we took inspiration from one of our favourite games, Genshin Impact, to create an educational and fun game for scholars, applying the lessons we learned throughout the quarters.

### **II. Project Objectives**

- Create a text-based Gacha program in Python that features characters and weapons from Genshin Impact
- Implement probabilities and a pity system
- Provide a program that will help students unwind
- Help scholars learn 8th grade Python code concepts through minigames
- Motivate scholars to learn coding concepts

### **III. Planned Features**

The project's main focus is on creating a gacha system or obtaining the characters and/or weapons required via doing a "10 pull" in the limited banner shown in the program to satisfy the user's intent. The game will have a guide character named "Paithon", a reference to the Genshin guide character "Paimon". Paithon will lead the players through the game, congratulate them when they obtain a 5-star, and bid farewell when the player leaves. Essentially, Paithon is the player's friend.

The program features an in-game currency called "Primogems" that will serve as the required "key" to make a wish on the banner. By doing a 10 pull, the program will immediately subtract 1,600 Primogems from the user's inventory in exchange for 3-star weapons (at most 9) and a guaranteed 4-star (that of either a weapon or a character), and possibly the featured limited 5-star, which has a low rate of appearing.

Since the program deducts 1,600 Primogems from the user every 10 pulls, the project will then feature a set of minigames that the user will have to complete in order to obtain the desired amount of Primogems that will satisfy their needs. The featured minigame, 'Python Quiz Bee!' is a quiz that contains different types of questions, either multiple choice or identification, and items

like “What’s the missing statement?”, “Find the error in this code”, “What are the use/s of [Python code concept?]” and more.

The minigames will feature three difficulties: “Formative Assessment (Easy)”, “Long Test (Medium)”, and “Summative Assessment (Hard)”. The higher the difficulty level is, the greater the rewards (Primogems) the user will receive. Each difficulty level will have five items, either multiple choice or identification. For the easy level, each question is worth 60 primogems. On the medium level, each item is worth 110, on hard, 150. These rewards will help the user stay motivated to both learn and obtain characters in this luck-based game.

## IV. Planned Inputs and Outputs

### Inputs:

1. Game Menu choice
2. Player name for dialogue
3. Primogems (in-game currency)
4. Quiz answers

### Outputs:

1. List of obtained Characters/Weapons
2. Inventory tracking (includes characters, weapons, and Primogems)
3. Quiz score summary

## V. Logic Plan

1. Game menu screen containing 4 options: Start, How to play, Credits, and Quit.
  2. If the player chooses start, the player will input their name from an input statement
  3. Player will play educational minigames, such as unscramble the word, or a multiple-difficulty quiz bee to obtain in-game currency (Primogems)
  4. When the player has enough Primogems to wish on the banner, they’ll input their primogems and make a 10x wish. This deducts 1,600 primogems from their inventory.
  5. After wishing, a 4-star weapon or character is guaranteed, whether off-banner or on-banner. The rest of the wishes have chances, 3-star being the most common, 4-stars next, and the 5-stars being the least common. When a golden star is present, there’s a 50/50 chance of obtaining a limited on-banner 5-star or a standard off-banner 5-star.
  6. If the player chooses How to Play: print statement containing "Paithon: Hello player! In this game, you must play Python-coding related minigames and answer questions to obtain a special currency called Primogems in order to wish on the current banner. You need 1,600 Primogems to wish. Good luck!"
  7. If the player chooses Credits: ASCII Art containing our group members’ names and their respective roles, presented through scrolling credits (print statements and time.sleep).
  8. If the player chooses to Quit: the program ends, and Paithon bids farewell.
- There will be a dictionary for the characters/weapons along with their rarity.
  - The quiz bee difficulties will offer respective lists and functions.
  - Nested if statements and random library for the probabilities and drop rates of obtainables.

