

Variables:

Genshin Character Dataset Variables

- **character_name:** name of the character
- **rarity:** rarity of the character
- **team_role:** the main role of the character in a genshin impact team of 4
- **main_DPS_rating:** a numeric rating from 1 to 6 that defines the character's effectiveness in a Main DPS (Damage per Second) role. The Main DPS character in the team is the primary "on-field" damage dealer.
- **sub_DPS_rating:** a numeric rating from 1 to 6 that defines the character's effectiveness in a Sub DPS (Damage per Second) role. The Sub DPS character in the team is an "off-field" damage dealer.
- **support_rating:** a numeric rating from 1 to 6 that defines the character's effectiveness in a support role. The Support character(s) in the team heals, gives stat boosts, and/or shields their teammates.
- **flexibility:** a calculated average of a character's `main_dps_rating`, `sub_dps_rating`, and `support_rating` rating. This illustrates how flexible a character is in performing in different roles.
- **region:** Genshin region where the character originated from.
- **vision:** vision/elemental power that the character can use.
- **weapon_type:** the weapon that the character wields
- **model:** type of character model that the developers used for the character. A character is a combination of the two values "age/height" (Short [Average Kid Height], Medium [Average Teen or Young Adult Height], or Tall [Average Adult Height]) and "gender" (Male or Female).
- **affiliation:** the in-game organization, group, or location that the character is affiliated with.
- **release_date:** the day that the character was made playable
- **limited:** a limited character can only be obtained during a set period through gacha or a special collaboration. 1 represents a limited character, and 0 represents a character that you can receive at any time.
- **ascension:** character stat that is increased when leveling up the character's main level. The stats that can be increased are: "Anemo/Geo/Electro/Dendro/Hydro/Pyro/Cryo DMG Bonus", "ATK", "CRIT RATE", "CRIT DMG", "HP", "Energy Recharge", "Healing Bonus", or "Elemental Mastery"
- **ascension_speciality:** in-game material that is used to level up the character. This material can be found in the open-world map, which is usually unique per character.
- **ascension_material:** another in-game material that is used to level up the character. This material can be obtained through enemy drops.

- **talent_material:** this in-game material is used to level up the character's talents. A character has three talents: normal atk (regular atk), elemental skill (special skill that does not require any energy), and elemental burst (special skill that requires energy to be activated). This material is the same as the character's ascension material.
- **talent_book_1-6:** book that is used to level up the character's talents (level one [1] to five [5]). This book can be obtained through special domains or open-world exploration.
- **talent_book_7-10:** book that is used to level up the character's talents (level six [6] to ten [10]). This book can be obtained through special domains or open-world exploration.
- **base character stats at each level (increments of 10):** these variables capture the HP, Atk, and Def stats of the character at each level (increments of 10) (1, 10, 20...)
- **special_0-6:** seven variables that capture the value of the character's ascension specialty value at certain level-ups.

Genshin Revenue Dataset

- **version:** version update number
- **version_name:** name of the version update
- **start_date:** the first day of the version. The day players can attempt to obtain the version's exclusive character(s).
- **end_date:** the last day players of the version. The last day that players can attempt to obtain the version's exclusive character(s).
- **5_star_character_1:** the (first) five-star character that can be obtained during the update through "wishing" (spending in game currency to potentially obtain the character)
- **days_since_last_banner_1:** the number of days since the character has been made available to obtain
- **rerun_number_1:** number of times (re-runs) that the character has been featured in a previous version update
- **weapon_1:** the first five star weapon that can be obtained during the update through "wishing" (spending in game currency to obtain the character potentially)
- **5_star_character_2:** the (other) five-star character that can be obtained during the update through "wishing" (spending in game currency to obtain the character potentially). Not every version update has another character featured.
- **days_since_last_banner_2:** the number of days since the character has been made available to obtain
- **rerun_number_2:** number of times (re-runs) that the character has been featured in a previous version update
- **weapon_2:** the first five-star weapon that can be obtained during the update through "wishing" (spending in-game currency to obtain the character potentially)
- **rerun:** if the version update's character banner includes a character rerun (not the first time that the character is featured)

- **mixed:** if the version update's character banner has more than one character featured
- **revenue:** The game's total revenue during the version update (in USD).
- **banner_days:** number of days that players can obtain the character
- **avg_revenue:** Average revenue that the game made each day during the version update (in USD).

Genshin Weapon Dataset

- **weapon_name:** name of the weapon
- **rarity:** rarity of the weapon (3, 4, 5 stars)
- **weapon_type:** type of the weapon (sword, polearm, catalyst, claymore, bow)
- **obtain_method:** methods on how a player can obtain the weapon
- **explore:** binary variable that represents whether a player can obtain the method via exploring the open world map. 1 represents a weapon obtainable through exploration and 0 represents a weapon that you can't obtain through exploration.
- **limited:** a limited weapon can only be obtained during a set period through gacha or a special collaboration. 1 represents a limited weapon and 0 represents a weapon that you can possibly receive any time.
- **base_atk:** base atk statistic of the weapon at lv. 1
- **secondary_stat:** secondary statistic that can be unique over some weapons.
percentage_stat: a secondary stat is percentage if the weapon's secondary stat has a percentage scaling. 1 represents a percentage scaling and 0 presents a flat statistic scaling.
- **maxed_secondary_stat:** the maximum value of the secondary stat

Q1

Question: *Can we predict a character's rarity based on their stats and affiliation (e.g., Mondstadt, Liyue)? What features contribute most to the model's accuracy, and how well does it generalize to different affiliations?*

Variables Involved: *Insert the variables that you'll use to answer the question*

Cleaning: *Insert the steps on how the data will be cleaned (drop missing values)*

Modeling/Computation: *List out what will be done to the data (TTS, Z-Score, etc.)*

Graphs: *Insert what graphs you're going to use to model the data and results*

Brief Discussion of why analysis is effective at answering questions: *Insert why your model is effective in answering the question*

Q2

Question: *How can dimensionality reduction techniques be applied to understand the underlying patterns in Genshin Impact character-related variables and predict a character's team role and flexibility based on diverse attributes? Can we identify a reduced set of features that explains the character's flexibility and role specialization?*

Variables Involved: *Insert the variables that you'll use to answer the question*

Cleaning: *Insert the steps on how the data will be cleaned (drop missing values)*

Modeling/Computation: *List out what will be done to the data (TTS, Z-Score, etc.)*

Graphs: *Insert what graphs you're going to use to model the data and results*

Brief Discussion of why analysis is effective at answering questions: *Insert why your model is effective in answering the question*

Q3

Question: *Can clustering techniques identify distinct groups of characters based on their elemental vision, and do these clusters align with specific team roles (main DPS, sub DPS, support)? Are there elemental visions that are more commonly associated with certain roles?*

Variables Involved: *Insert the variables that you'll use to answer the question*

Cleaning: *Insert the steps on how the data will be cleaned (drop missing values)*

Modeling/Computation: *List out what will be done to the data (TTS, Z-Score, etc.)*

Graphs: *Insert what graphs you're going to use to model the data and results*

Brief Discussion of why analysis is effective at answering questions: *Insert why your model is effective in answering the question*