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CS 4990.02
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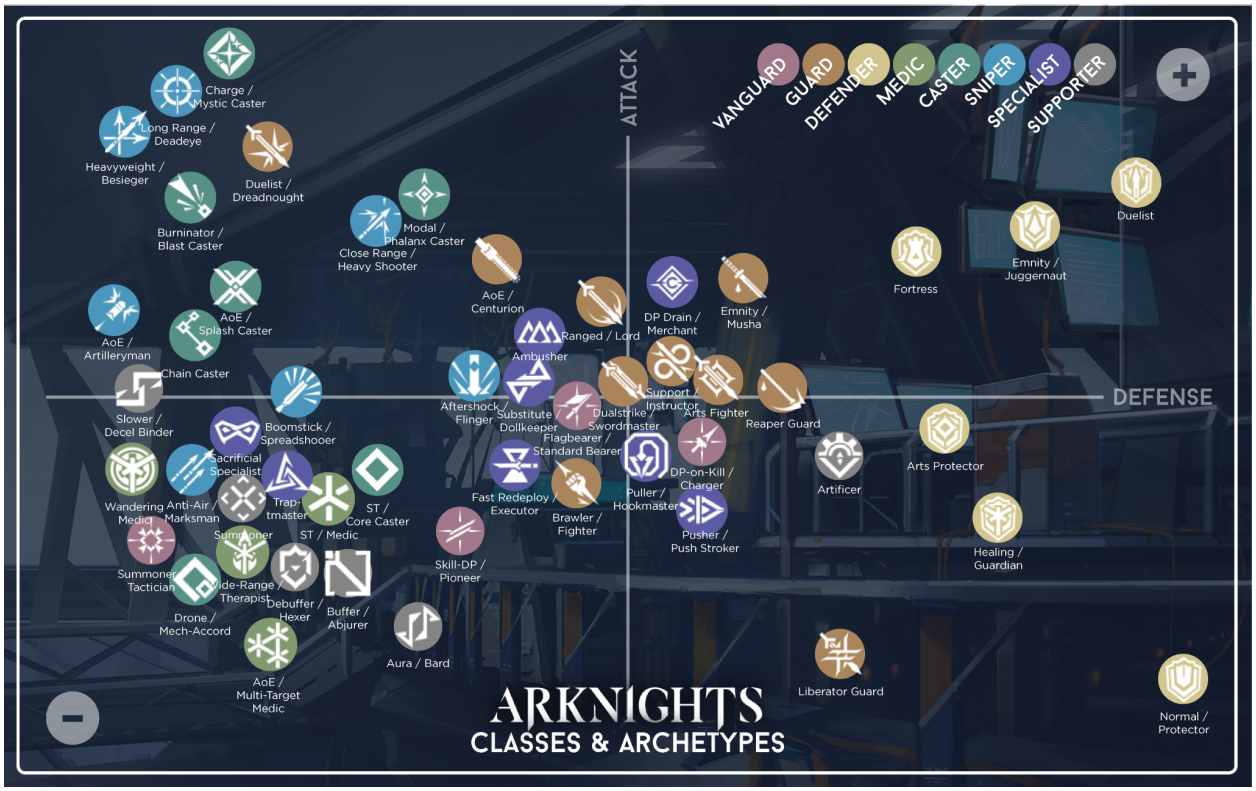
Lab 2 Report

Infographic

As the infographic was made by hand, placement is done by eye. The higher quality image with zoom can be found here: https://i.imgur.com/yxzN3Sp.jpg



Attribute Analysis & Visualization

The attributes I chose to examine are: Class, Archetype 1, Archetype 2, HP, ATK, and DEF.

The valid range of class is from the list of eight: vanguard, guard, defender, medic, caster, sniper, specialist, and support.

The valid range of archetypes available to each operator is (mostly) limited to their class. Some archetypes can exist between different classes, like AoE (Area of Effect), ST (Single

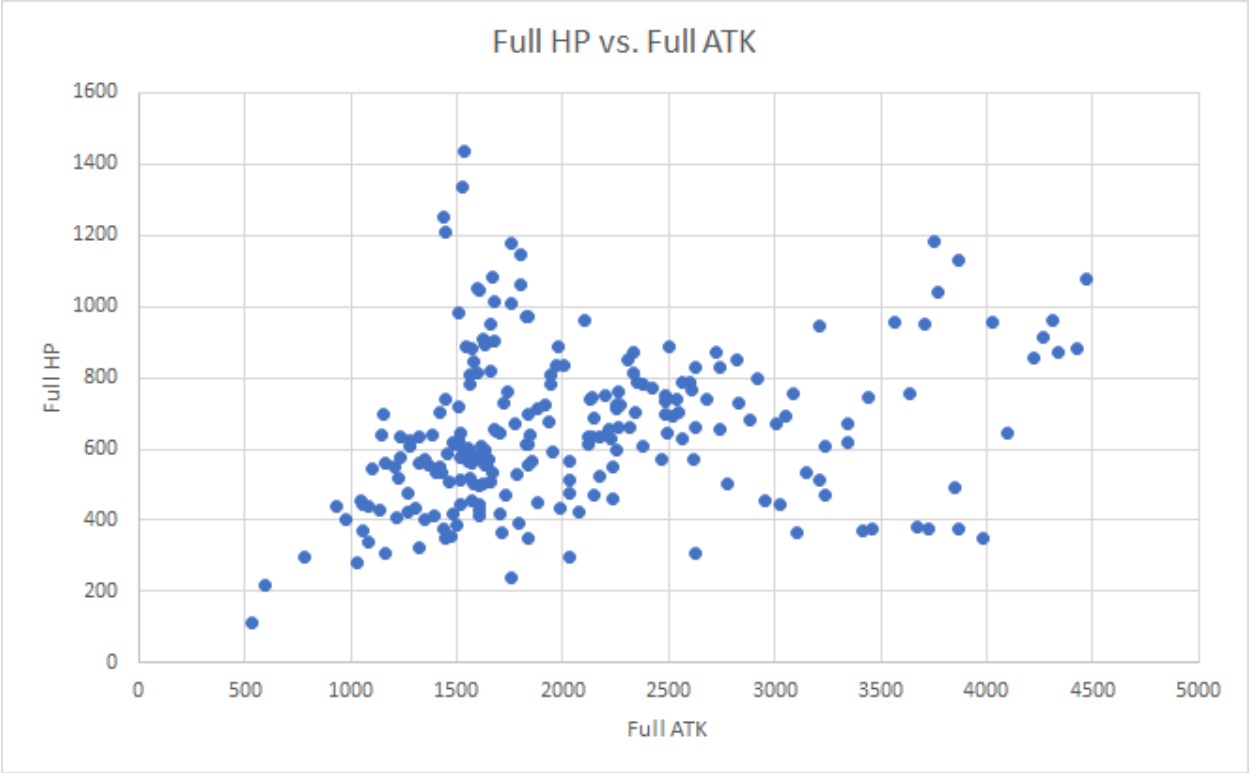
Target), and Summoner; these archetypes are italicised. The following table indicates which corresponds with which.

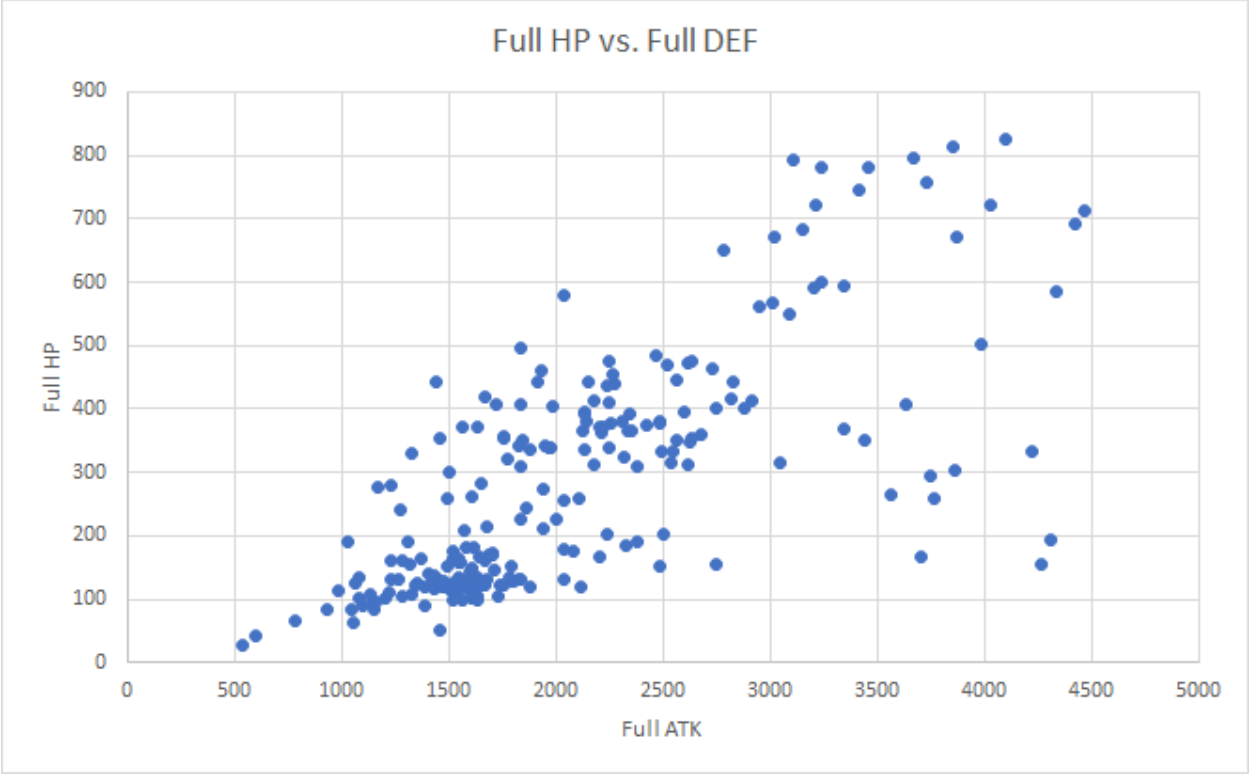
Class	Possible Archetypes
Vanguard	Skill-DP, Pioneer, Flagbearer, Standard Bearer, DP-On-Kill, Charger, *Summoner*, Tactician
Guard	Duelist, Dreadnought, Support, Instructor, Brawler, Fighter, Arts Fighter, Ranged, Lord, *AoE*, Centurion, Enmity, Musha, Dualstrike, Swordmaster, Liberator Guard, Reaper Guard
Defender	Enmity, Juggernaut, Healing, Guardian, Normal, Protector, Arts Protector, Fortress
Medic	Medic, Multi-target Medic, *ST*, *AoE*, Wandering Medic, Wide-Range, Therapist
Caster	Drone, Mech-Accord, Modal, Phalanx Caster, Chain Caster, Splash Caster, Core Caster, Burninator, Blast Caster, *ST*, *AoE*, Charge, Mystic Caster
Sniper	Long-Range, Deadeye, Boomstick, Spreadshooter, Anti-Air, Marksman, Aftershock, Flinger, Heavyweight, Besieger, *AoE*, Artilleryman, Close Range, Heavyshooter
Specialist	DP-Drain, Merchant, Ambusher, Puller, Hookmaster, Pusher, Push Stroker, Fast-Redeploy, Executor, Sacrificial Specialist, Substitute, Dollkeeper, Trapmaster
Supporter	*Summoner*, Debuffer, Hexer, Aura, Bard, Slower, Decel Binder, Buffer, Abjurer

Technically, the valid range of the Base HP, ATK, and DEF is any integer greater than 0. However, the actual ranges vary individually. Currently, the base HP is [400, 5000]. Base ATK is [0, 1300]. Base DEF is [0, 800].

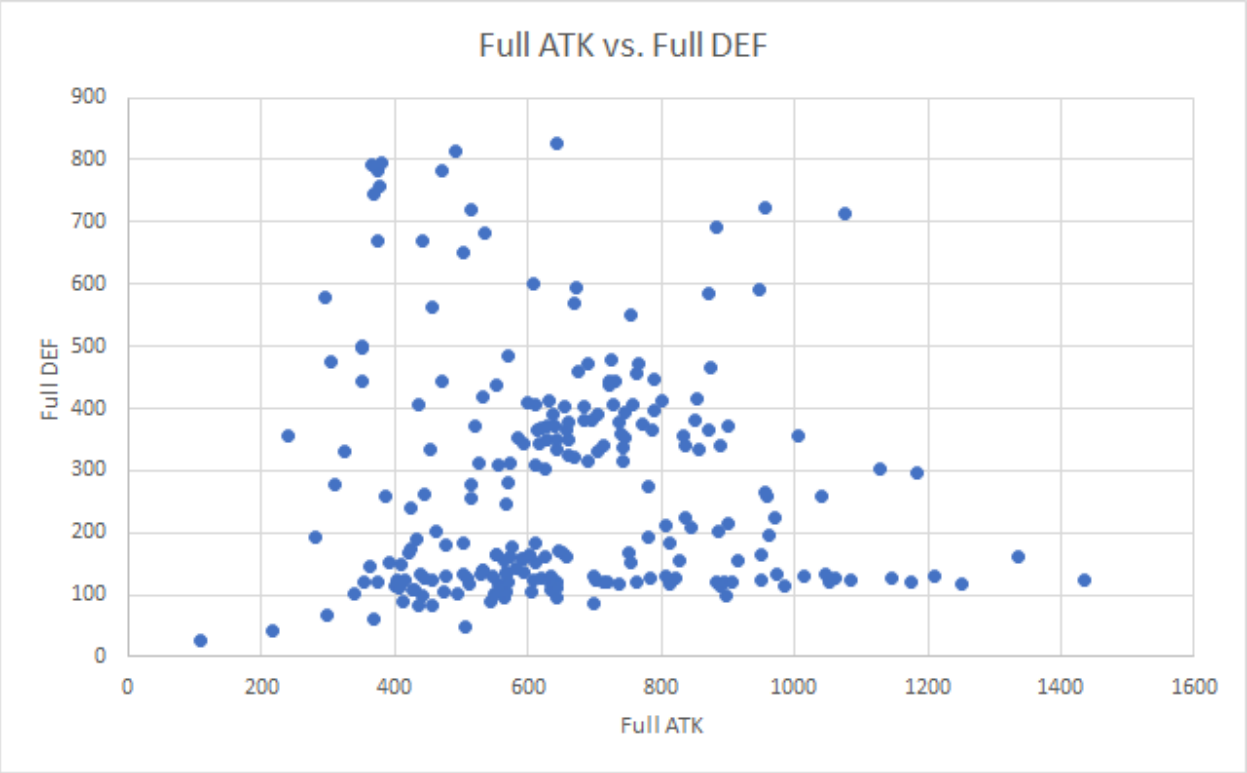
Since the last lab report, the operators Goldenglow and Quercus have been released, and their stats added to the website. The data presented here will reflect this addition.

The following two graphs plot Full ATK and Full DEF against Full HP respectively. I exclude the other values of HP, ATK, and DEF to simplify the graphs.

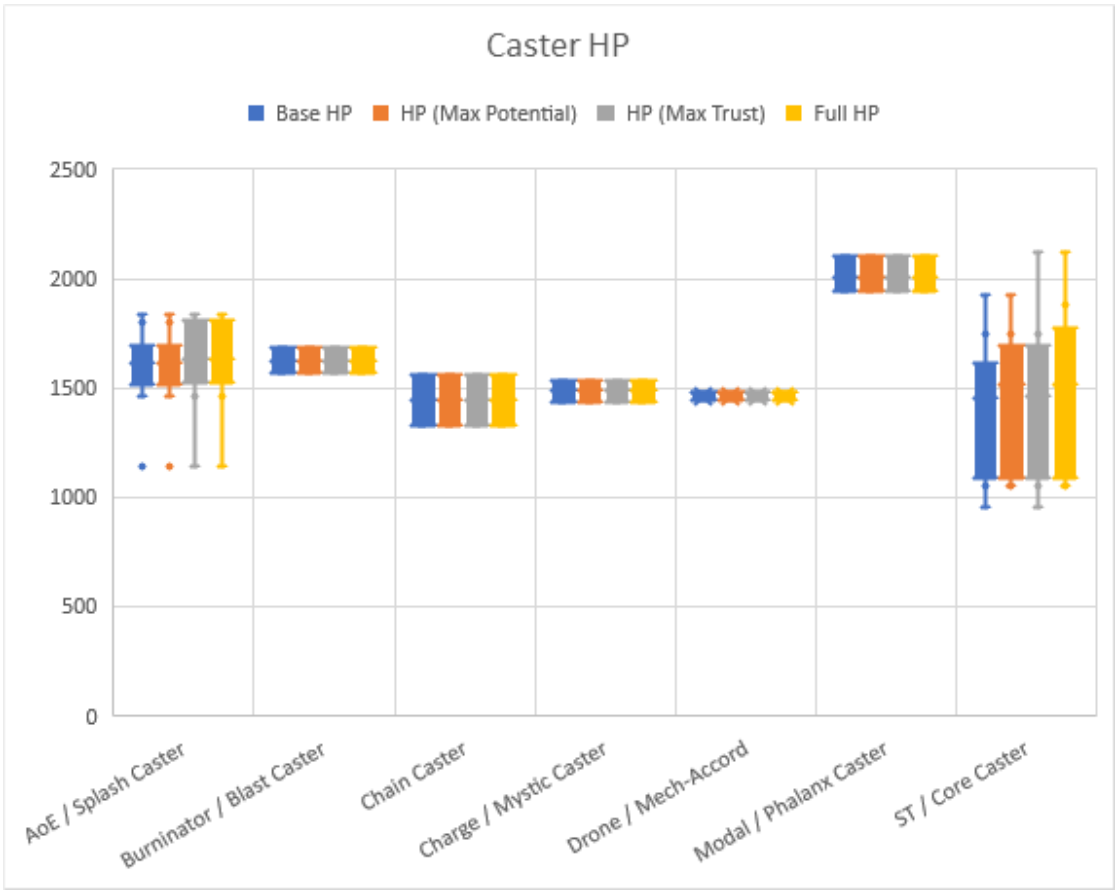


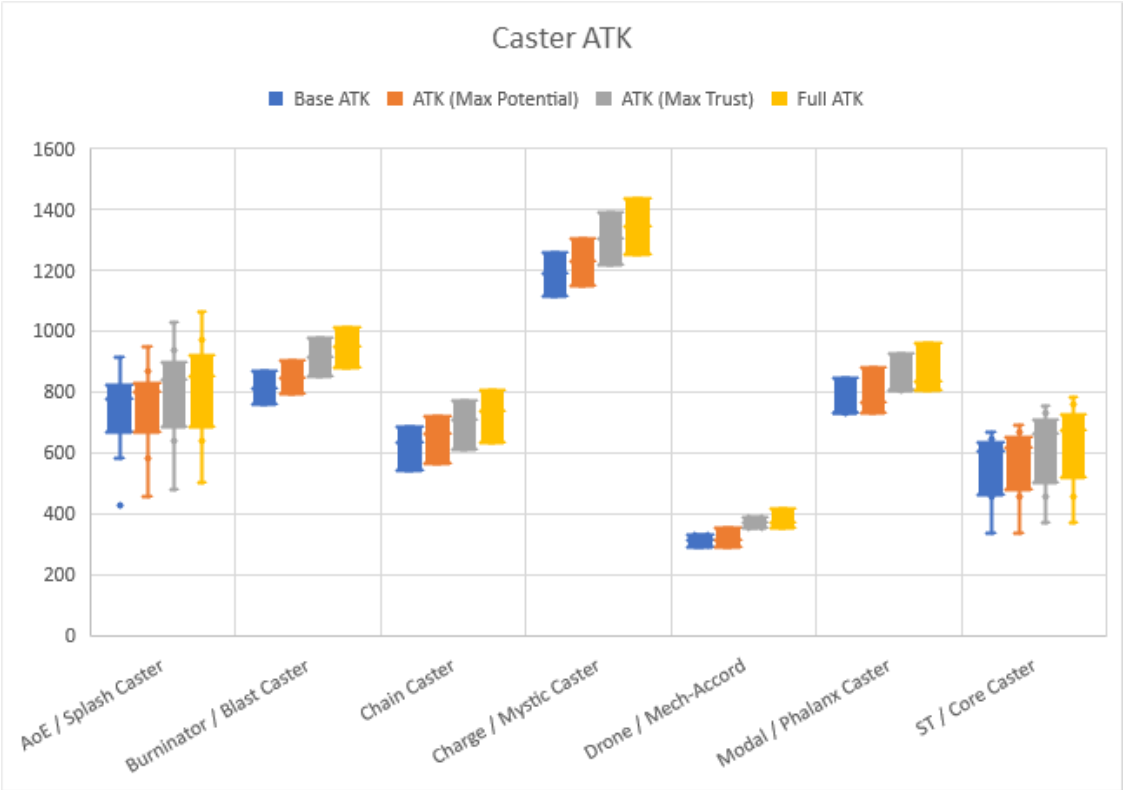


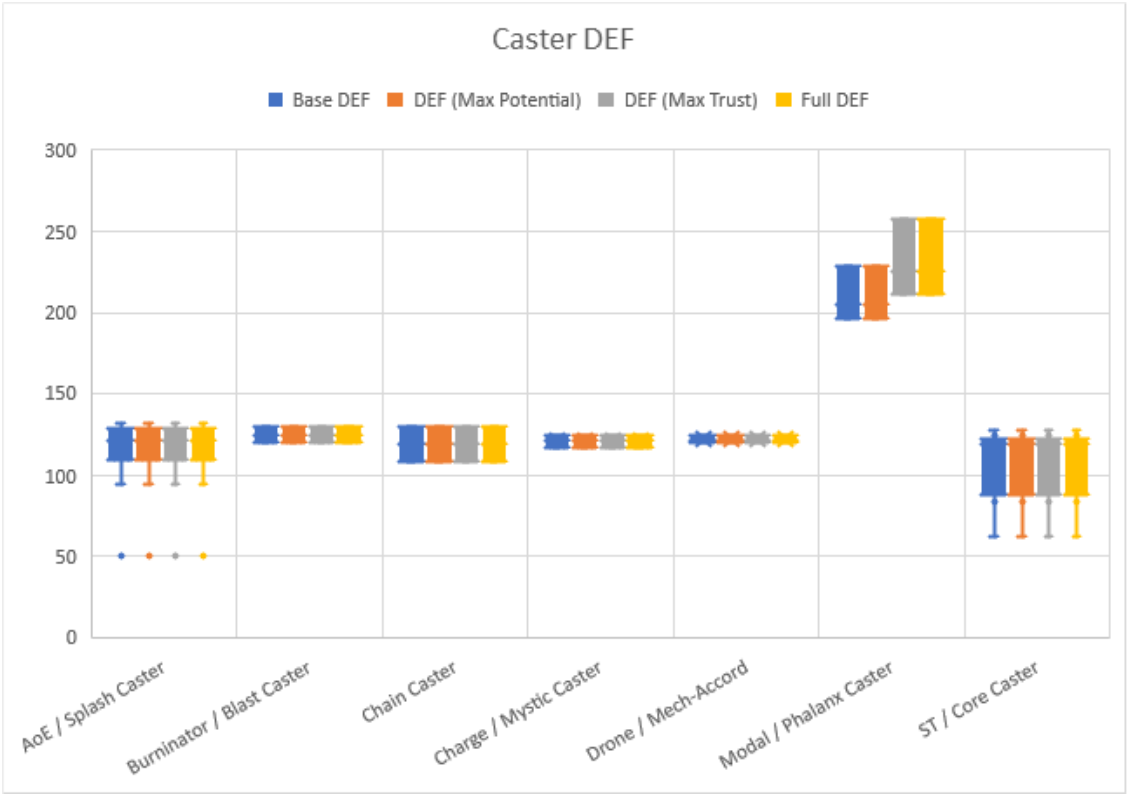
Clearer clusters form when comparing Full ATK and Full DEF, where about three clusters appear, divided by a gap between 600-800 ATK and 200-300 DEF.

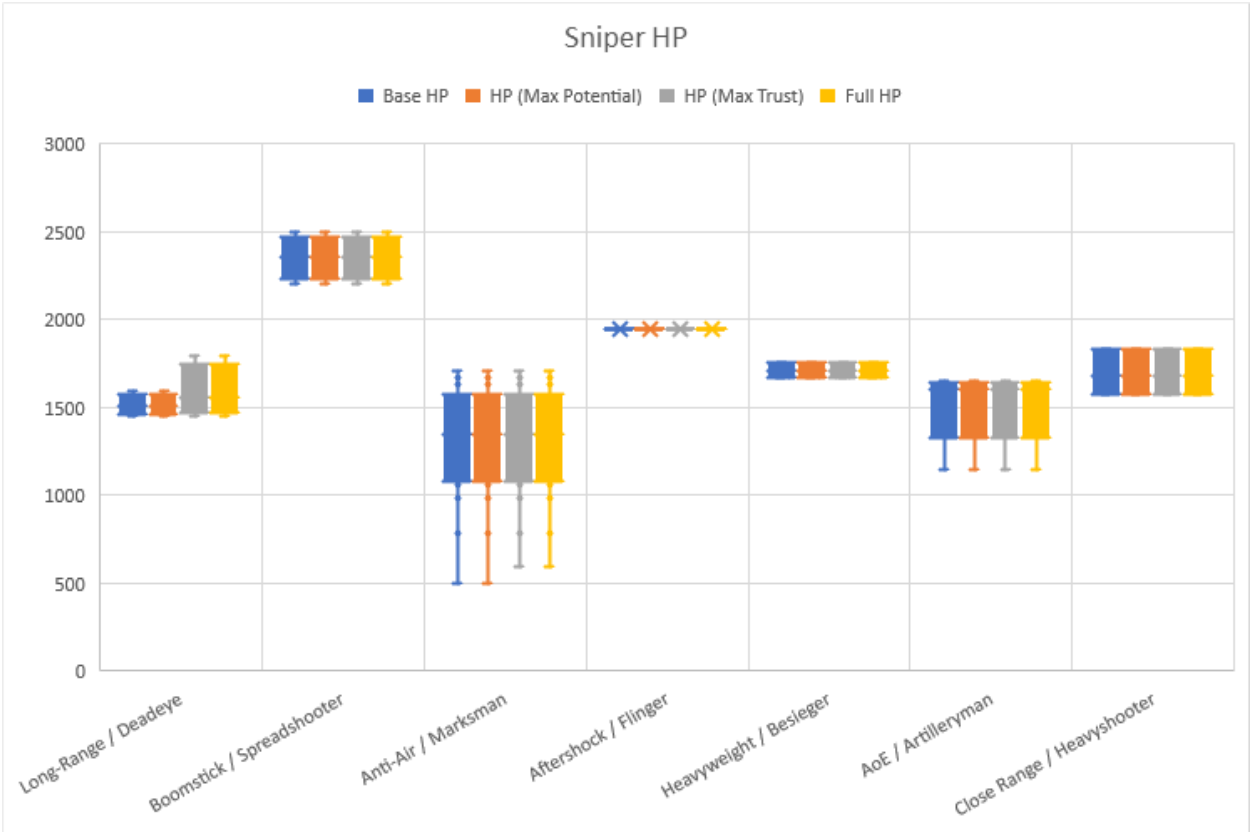


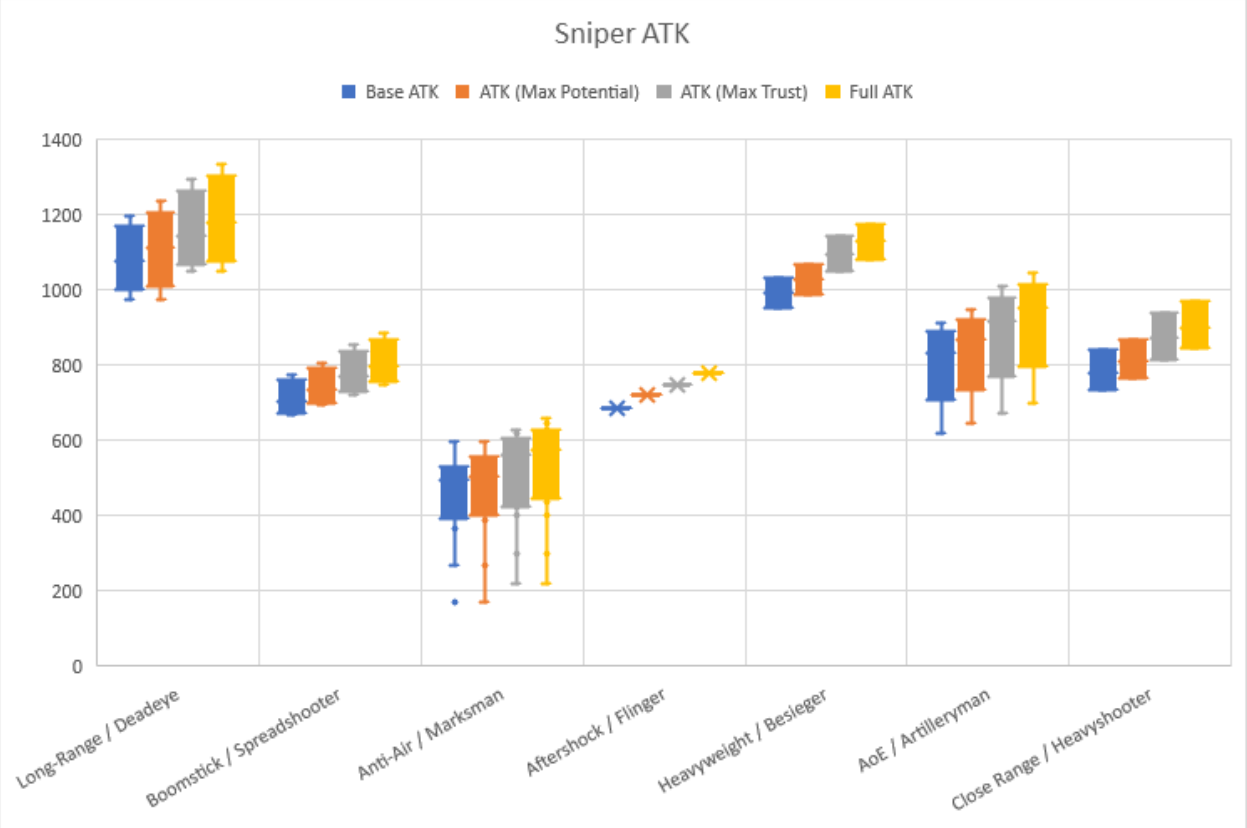
For the following graphs, I have decided to separate the data into each individual class and then by stat (HP, ATK, DEF). The operators are grouped together by their archetypes. Due to the large amount of graphs needed to represent all data, I will focus only on two classes: Casters and Snipers.

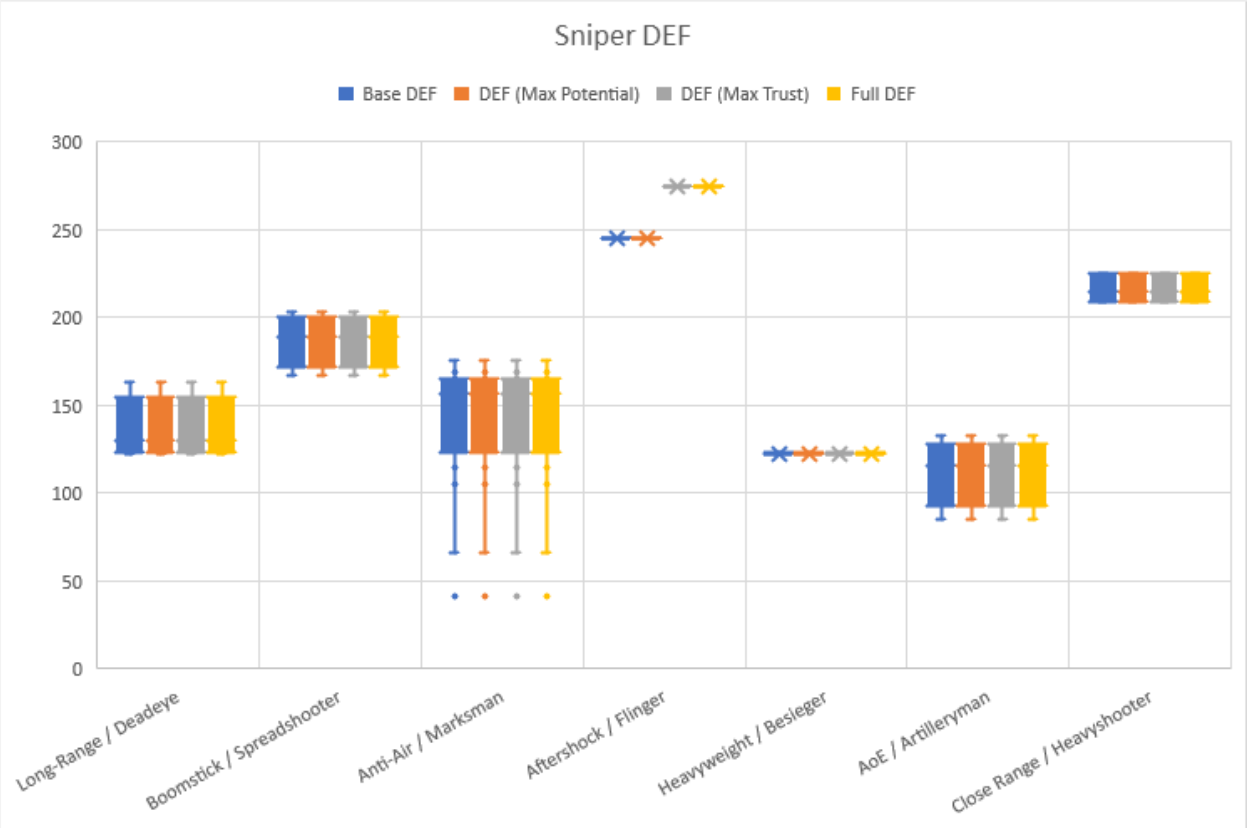

Caster HP
Base HP
HP (Max Potential)
HP (Max Trust)
Full HP
2500
2000
1500
1000
500
0
AoE / Splash Caster
Burninator / Blast Caster
Chain Caster
Charge / Mystic Caster
Drone / Mech-Accord
Modal / Phalanx Caster
ST / Core Caster


Caster ATK
Base ATK
ATK (Max Potential)
ATK (Max Trust)
Full ATK
1600
1400
1200
1000
800
600
400
200
0
AoE / Splash Caster
Burninator / Blast Caster
Chain Caster
Charge / Mystic Caster
Drone / Mech-Accord
Modal / Phalanx Caster
ST / Core Caster


Caster DEF
Base DEF
DEF (Max Potential)
DEF (Max Trust)
Full DEF
300
250
200
150
100
50
0
AoE / Splash Caster
Burninator / Blast Caster
Chain Caster
Charge / Mystic Caster
Drone / Mech-Accord
Modal / Phalanx Caster
ST / Core Caster


Sniper HP
Base HP
HP (Max Potential)
HP (Max Trust)
Full HP
3000
2500
2000
1500
1000
500
0
Long-Range / Deadeye
Boomstick / Spreadshooter
Anti-Air / Marksman
Aftershock / Flinger
Heavyweight / Besieger
AoE / Artilleryman
Close Range / Heavyshooter


Sniper ATK
Base ATK
ATK (Max Potential)
ATK (Max Trust)
Full ATK
1400
1200
1000
800
600
400
200
0
Long-Range / Deadeye
Boomstick / Spreadshooter
Anti-Air / Marksman
Aftershock / Flinger
Heavyweight / Besieger
AoE / Artilleryman
Close Range / Heavyshooter


Sniper DEF
Base DEF
DEF (Max Potential)
DEF (Max Trust)
Full DEF
300
250
200
150
100
50
0
Long-Range / Deadeye
Boomstick / Spreadshooter
Anti-Air / Marksman
Aftershock / Flinger
Heavyweight / Besieger
AoE / Artilleryman
Close Range / Heavyshooter

Data Mining Suitability

For the scatter plot graphs that compare Full HP with Full ATK and Full DEF, potential clusters seem to appear. While the clusters I identify are arbitrary, they do show an interesting relationship between groups of operators who have similar HP and ATK/DEF. In general, operators with the highest attack have HP on the lower end; likewise, low DEF correlates with low HP. In regards to Full ATK compared to Full DEF, the cluster with lower ATK and DEF makes sense as those are the operators with lower rarity, meaning they have lower stats in general. The clusters with higher ATK but lower DEF and higher DEF but lower ATK illustrates game balancing, as the point is that a single operator cannot excel in all fields.

While it makes sense that different archetypes have stats that can cluster together, it is interesting to see that this also applies to *pairs* of archetypes—and, in fact, most archetypes appear exclusively as a pair. This helps clarify some overlapping archetypes, such as AoE, as the second archetype indicates the specifics. In general, the separation of the archetypes into two ("Archetype 1" and "Archetype 2") is unnecessary, the division rendered arbitrary. For this reason, the paired archetypes are listed together in the graphics (e.g. "AoE / Splash Caster").

Something to note is that the outliers shown are all one star rarity. This is expected because one star operators have the lowest stats out of all the characters, regardless of archetypes.

What is unexpected is that not all stats are increased when an operator increases their trust and/or potential. In the game, trust is gained when an operator is used in a map, which then increases certain stats—this maxes out at 200% trust. Potential is gained when a duplicate of the operator is obtained, and this maxes out at six, with each duplicate granting a different stat increase. All archetypes of casters and snipers increase their ATK with gained trust and/or potential. All sniper archetypes do not increase their DEF; all caster archetypes except for "Modal / Phalanx Caster" do not increase their DEF. All sniper archetypes do not increase their HP; all caster archetypes except for "ST / Core Caster" do not increase their HP.