The Best Class and Heroes in Overwatch

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OVERWATCH

Background of Overwatch

- First person shooter video game made by Blizzard Entertainment

- Games are 6 vs 6 multiplayer.

- Player has the option to pick 1 of 27 heroes, which are broken into 4 subclasses

        Offense   Defense   Tank   Support

 – Game can be played in 2 styles

    1. Quickplay: Casual game mode for quick matches

    2. Competitive: Ranked game mode that gives serious players the ability to go up against other serious players and receive a rank.
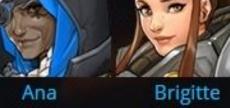
Competitive Skill Ranks(SR): Bronze, Silver, Gold, Platinum, Diamond, Master, Grandmaster
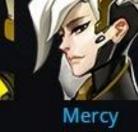
Heroes in Overwatch

Offense
Doomfist | Genji | McCree | Pharah | Reaper | Soldier: 76 | Sombra | Tracer

Defense
Bastion | Hanzo | Junkrat | Mei | Torbjörn | Widowmaker

Tank
D.Va | Orisa | Reinhardt | Roadhog | Winston | Zarya

Support
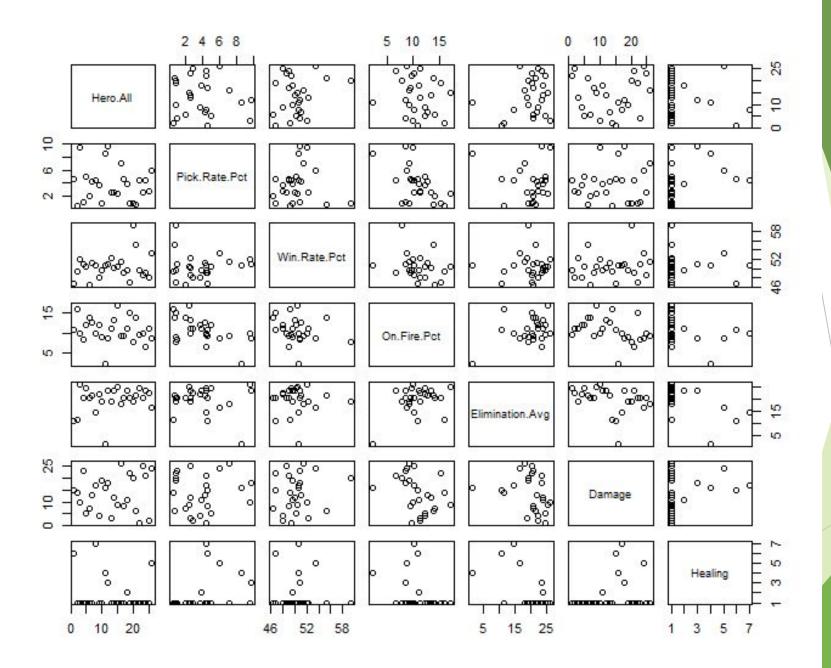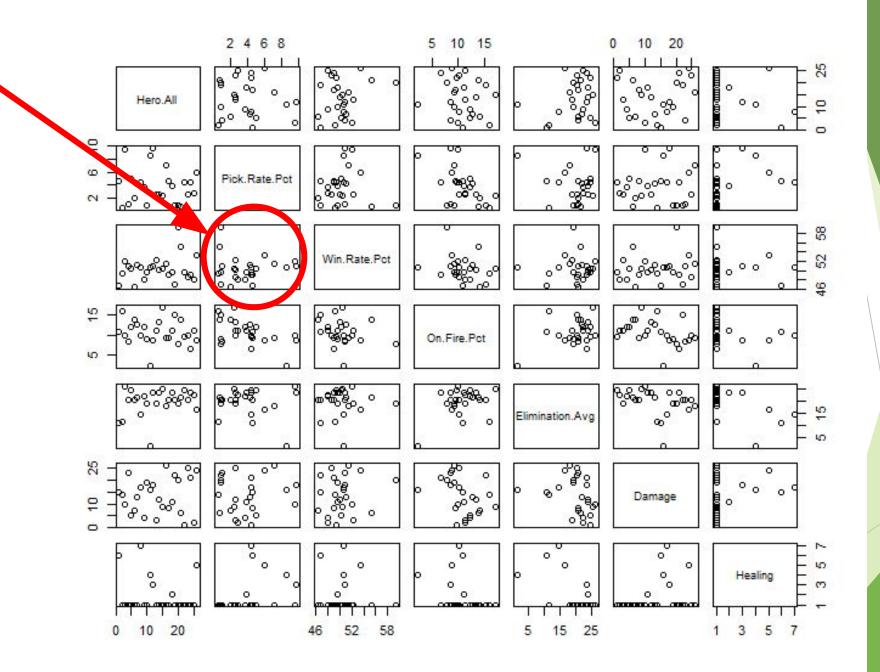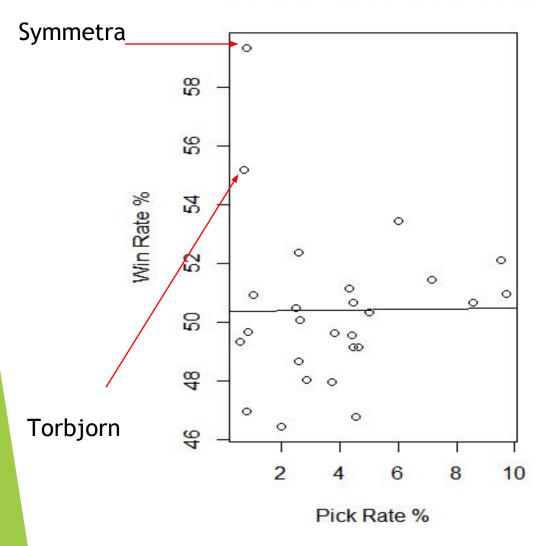Ana | Brigitte | Lúcio | Mercy | Moira | Symmetra | Zenyatta

- **Original Question: Are there any trends between 7 categories, and if so why?**
- The seven categories:
  1. Hero name
  2. Hero pick rate %
  3. Hero win rate %
  4. On fire %
  5. Eliminations
  6. Damage
  7. Healing (If applicable)

- Used website <u>Overbuff.com</u>, which is a third party data tracking site for all the heroes stats, to gather info.

- Made data Matrix for the data gathered to easily try to find any trend. However...

|	Hero.All	Pick.Rate.Pct	Win.Rate.Pct	On.Fire.Pct	Elimination.Avg	Damage	Healing
1	Ana	4.54	46.78	10.76	10.80	3,452	7,906
2	Bastion	0.57	49.35	15.93	11.51	18,228	0
3	D.Va	9.54	52.10	9.84	26.19	13,363	0
4	Doomfist	1.00	50.94	8.52	20.61	8,464	0
5	Genji	5.00	50.34	12.12	24.47	11,815	0
6	Hanzo	1.98	46.46	14.05	20.73	12,356	0
7	Junkrat	4.30	51.15	12.70	21.76	15,955	0
8	Lucio	4.46	50.66	10.06	14.65	5,720	9,145
9	McCree	3.74	47.98	12.18	22.19	11,578	0
10	Mei	0.83	49.69	9.09	19.29	7,041	0
11	Mercy	8.55	50.68	2.24	1.50	378	11,906
12	Moira	9.72	50.97	8.61	23.51	6,452	10,799
13	Orisa	2.58	52.38	11.19	19.05	11,516	0
14	Pharah	2.63	50.07	13.35	23.80	14,312	0
15	Reaper	2.46	50.47	17.08	25.27	12,778	0
16	Reinhardt	7.16	51.45	9.21	17.96	9,380	0
17	Roadhog	4.62	49.14	9.43	20.62	12,358	0
18	Soldier: 76	3.80	49.63	11.15	23.90	13,832	1,821
19	Sombra	0.79	46.95	15.10	20.47	8,212	0
20	Symmetra	0.79	59.34	7.71	19.33	7,905	0
21	Torbjorn	0.72	55.20	13.91	21.46	12,333	0
22	Tracer	4.40	49.55	9.63	24.61	10,603	0
23	Widowmaker	2.57	48.66	10.05	20.39	9,227	0
24	Winston	4.44	49.15	6.56	23.68	8,209	0
25	Zarya	2.84	48.05	11.28	22.52	11,032	0
26	Zenyatta	5.99	53.46	8.76	16.46	8,489	6,936

Pick Rate % vs Win Rate %

Symmetra

Torbjorn

Correlation coefficient: 0.013
R^2: 0.000164
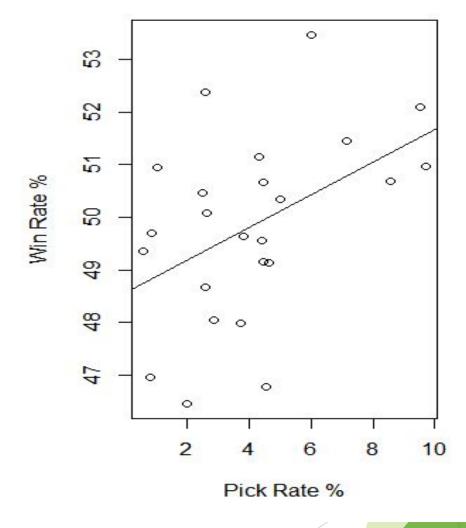
Pick Rate % vs Win Rate %

Correlation coefficient: 0.456
R^2: 0.207

New Question: Which of the four subclasses is statistically the best based off of data gathered, and which heroes are played more as Skill Rank goes up and why?

- *Prediction*: Support heroes will be the best because of their amount of usage in every game, and the harder characters will be used more in the higher skill games because players like challenging themselves.

Offense
Correlation coefficient: 0.188
R^2: 0.035

Defense
Correlation coefficient: -0.156
R^2: 0.024

Tank
Correlation coefficient: 0.469
R^2: 0.219
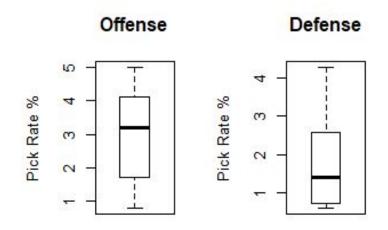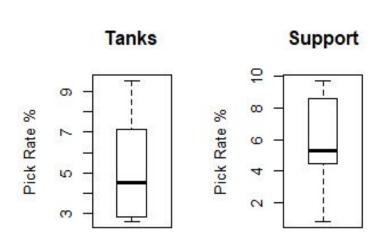
Support
Correlation coefficient: -0.533
R^2: 0.284
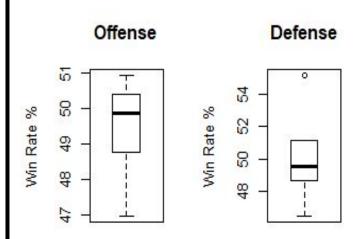
Offense
Pick % mean: 2.977
Win % mean: 49.491

Defense
Pick % mean: 1.828
Win % mean: 50.085

Tank
Pick % mean: 5.196
Win % mean: 51.981

Support
Pick % mean: 5.675
Win % mean: 51.981

- I then plotted each of the subclasses and their heroes for pick rates in competitive for bronze, platinum, and grandmaster

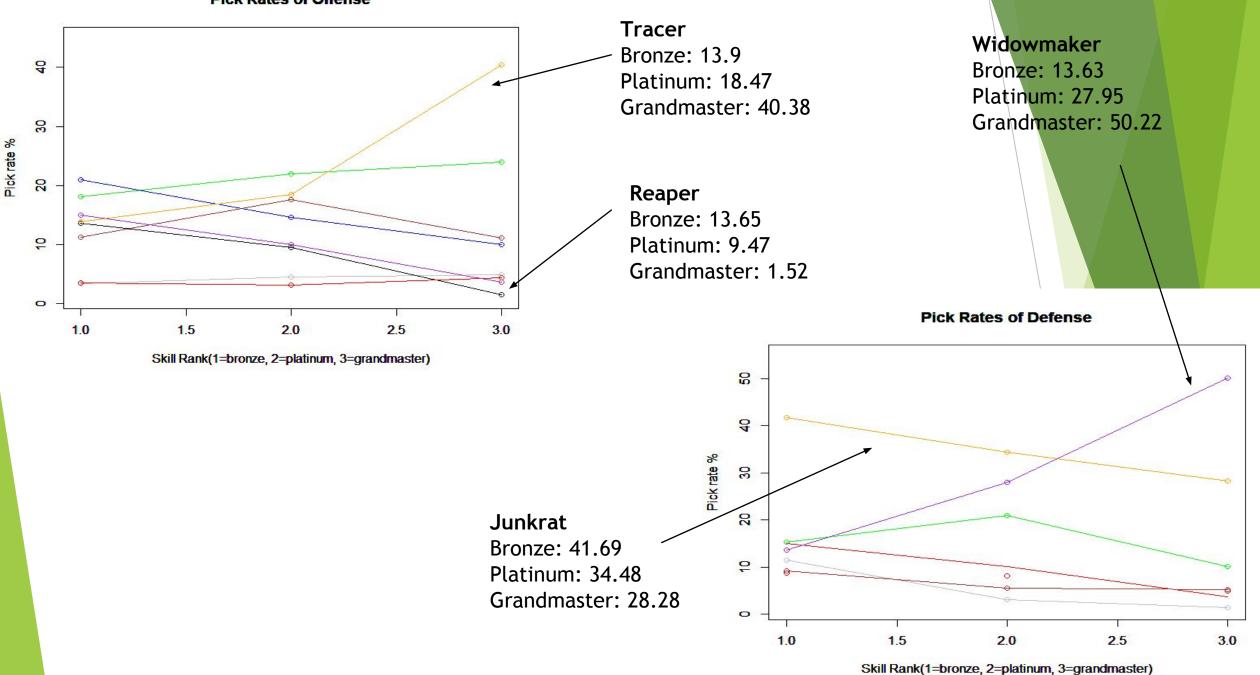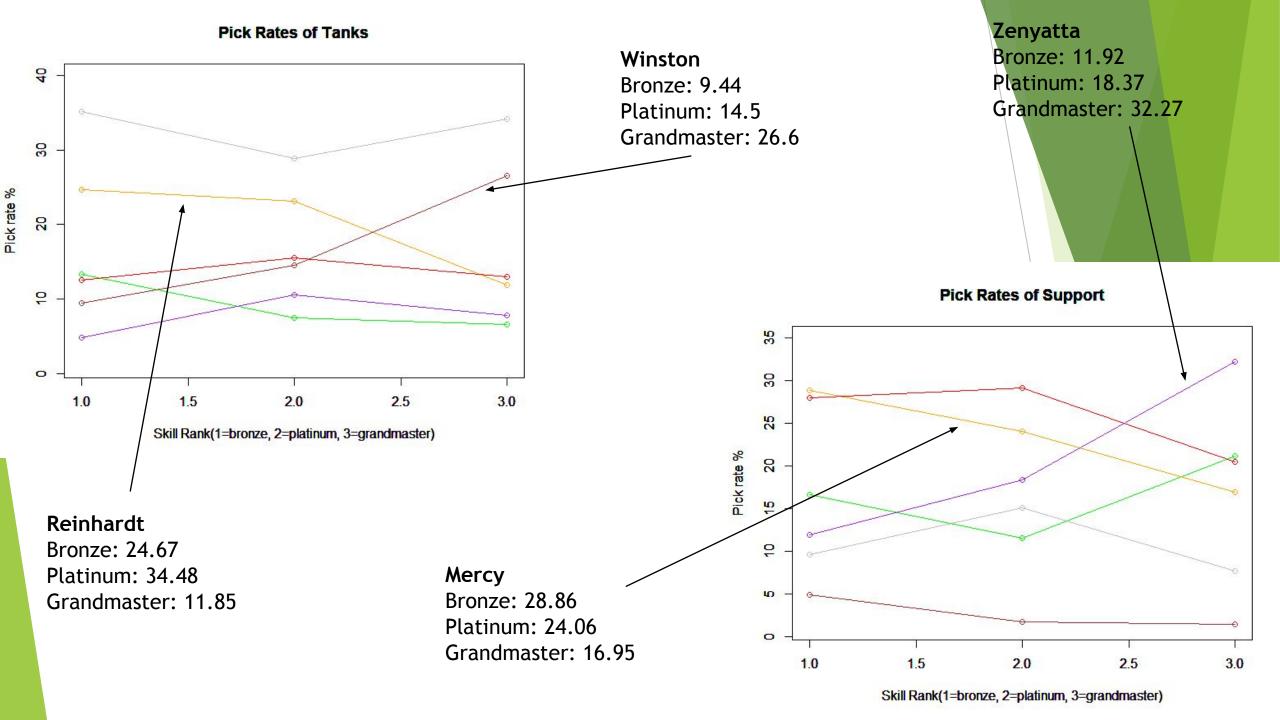|	Hero.All	Bronze.Pct	Platinum.Pct	Grandmaster.Pct
1	Ana	9.59	15.11	7.65
2	Bastion	11.55	3.23	1.45
3	D.Va	35.15	28.88	34.19
4	Doomfist	3.42	4.52	4.86
5	Genji	18.19	22.02	23.99
6	Hanzo	14.74	20.44	10.29
7	Junkrat	42.17	35.19	28.82
8	Lucio	16.66	11.55	21.19
9	McCree	11.22	17.69	11.15
10	Mei	8.45	7.74	4.71
11	Mercy	28.86	24.06	16.95
12	Moira	28.05	29.18	20.48
13	Orisa	13.36	7.49	6.57
14	Pharah	15.02	10.02	3.70
15	Reaper	13.65	9.47	1.52
16	Reinhardt	24.67	23.14	11.85
17	Roadhog	12.53	15.48	13.01
18	Soldier: 76	20.99	14.63	10.01
19	Sombra	3.61	3.17	4.38
20	Symmetra	4.92	1.73	1.47
21	Torbjorn	9.45	5.70	5.22
22	Tracer	13.90	18.47	40.38
23	Widowmaker	13.64	27.69	49.50
24	Winston	9.44	14.50	26.60
25	Zarya	4.85	10.51	7.79
26	Zenyatta	11.92	18.37	32.27

Pick Rates of Offense

Tracer
Bronze: 13.9
Platinum: 18.47
Grandmaster: 40.38

Reaper
Bronze: 13.65
Platinum: 9.47
Grandmaster: 1.52

Widowmaker
Bronze: 13.63
Platinum: 27.95
Grandmaster: 50.22

Pick Rates of Defense

Junkrat
Bronze: 41.69
Platinum: 34.48
Grandmaster: 28.28

Pick Rates of Tanks

Pick rate %

40
30
20
10
0

1.0   1.5   2.0   2.5   3.0

Skill Rank(1=bronze, 2=platinum, 3=grandmaster)

Winston
Bronze: 9.44
Platinum: 14.5
Grandmaster: 26.6

Zenyatta
Bronze: 11.92
Platinum: 18.37
Grandmaster: 32.27

Reinhardt
Bronze: 24.67
Platinum: 34.48
Grandmaster: 11.85

Mercy
Bronze: 28.86
Platinum: 24.06
Grandmaster: 16.95

Pick Rates of Support

Pick rate %

35
30
25
20
15
10
5
0

1.0   1.5   2.0   2.5   3.0

Skill Rank(1=bronze, 2=platinum, 3=grandmaster)

Conclusions

- In regards to the best subclass, support heroes are the best.

- They have the highest correlation coefficient and R^2 value between pick rate % and win rate %

- Mean pick rate and win rate is the highest between any of the four and the boxplots help show

- In regards to the most played heroes as SR increases, there is a 3 star difficulty ranking system for every hero in the game,

   - 1 star: the hero is easy.

   - 2 stars: somewhat difficult to higher end

   - 3 stars: Hard to play hero

- I found that the heroes with 2-3 star ranking are played more as rank increases and the 1-2 star heroes decline as well.

- I believe the reason for support being the best is due to there almost always being a minimum of 2 healers per team every game. They are absolutely necessary to win, which is why their win percentage is highest.

- I also believe that the star ranking system in the game holds true with regards to which heroes are the hardest and it can be seen that the more skillful players go for the more difficult ones.

- I also feel that some heroes such as Tracer and Winston and D.va have higher pick rates in general because they are fan favorites and faces of the game.

OVERWATCHDATA

```r
plot(overwatchdata)
#plots my table to form a data matrix


print("Correlation coefficients")

plot(x=overwatchdata[,2],y=overwatchdata[,3],xlab="Pick Rate %",ylab="Win Rate %",main="Pick Rate % vs Win Rate %")

abline(lm(overwatchdata[,3]~overwatchdata[,2]))

print(cor(overwatchdata[,2],overwatchdata[,3]))

plot(x=OverwatchdataExOL[,2],y=OverwatchdataExOL[,3],xlab="Pick Rate %",ylab="Win Rate %",main="Pick Rate % vs Win Rate %")

abline(lm(OverwatchdataExOL[,3]~OverwatchdataExOL[,2]))

print(cor(OverwatchdataExOL[,2],OverwatchdataExOL[,3]))

#Prints in the console Correlation Coefficients so that the user can see the printed correlation calculations easily.

#the plots are to show Pick rate % vs Win rate % of all the heroes and it looked like a positive correlation, the first is with

#outliers, the second is without and used abline for line of best fit


par(mfrow= c(2,2))

plot(x=OverwatchOffense[,2],y=OverwatchOffense[,3],xlab="Pick Rate %",ylab="Win Rate %",main="Offense")

abline(lm(OverwatchOffense[,3]~OverwatchOffense[,2]))

print(cor(OverwatchOffense[,2],OverwatchOffense[,3]))

plot(x=OverwatchDefense[,2],y=OverwatchDefense[,3],xlab="Pick Rate %",ylab="Win Rate %",main="Defense")

abline(lm(OverwatchDefense[,3]~OverwatchDefense[,2]))

print(cor(OverwatchDefense[,2],OverwatchDefense[,3]))

plot(x=OverwatchTanks[,2],y=OverwatchTanks[,3],xlab="Pick Rate %",ylab="Win Rate %",main="Tanks")

abline(lm(OverwatchTanks[,3]~OverwatchTanks[,2]))

print(cor(OverwatchTanks[,2],OverwatchTanks[,3]))

plot(x=OverwatchHeals[,2],y=OverwatchHeals[,3],xlab="Pick Rate %",ylab="Win Rate %",main="Support")

abline(lm(OverwatchHeals[,3]~OverwatchHeals[,2]))

print(cor(OverwatchHeals[,2],OverwatchHeals[,3]))

#used par to make the plots all on the same table, did the same thing as before except now it is for each of the four individual classes
```

- **SROFFENSE**

- Doomfist<-c(3.42, 4.52, 4.86)

- Genji<-c(18.19, 22.02, 23.99)

- McCree<-c(11.22, 17.69, 11.15)

- Pharah<-c(15.02, 10.02, 3.7)

- Reaper<-c(13.65, 9.47, 1.52)

- Soldier<-c(20.99, 14.63, 10.01)

- Sombra<-c(3.61, 3.17, 4.38)

- Tracer<-c(13.9, 18.47, 40.38)

- plot(Doomfist, col="grey",ylim=c(1,45),xlab="Skill Rank(1=bronze, 2=platinum, 3=grandmaster)",ylab="Pick rate %",main="Pick Rates of Offense")

- lines(Doomfist, type = "l", col ="grey")

- par(new=TRUE)

- plot(Genji, col="green",ylim=c(1,45))

- lines(Genji, type = "l", col = "green")

- par(new=TRUE)

- plot(McCree,col="brown",ylim=c(1,45))

- lines(McCree, type = "l", col = "brown")

- par(new=TRUE)

- plot(Pharah,col="purple",ylim=c(1,45))

- lines(Pharah, type = "l", col = "purple")

- par(new=TRUE)

- plot(Reaper,col="black",ylim=c(1,45))

- lines(Reaper, type = "l", col = "black")

- par(new=TRUE)

- plot(Soldier,col="blue",ylim=c(1,45))

- lines(Soldier, type = "l", col = "blue")

- par(new=TRUE)

- plot(Sombra,col="red",ylim=c(1,45))

- **SRDEFENSE**
-
- Bastion<-c(11.46, 3.10, 1.43)
- Hanzo<-c(15.32,   20.89, 10.02)
- Junkrat<-c(41.69, 34.48, 28.28)
- Mei<-c(8.68, 8.03, 4.88)
- Torbjorn<-c(9.22, 5.55, 5.17)
- Widowmaker<-c(13.63, 27.95, 50.22)
-
- plot(Bastion, col="grey",ylim=c(1,55),xlab="Skill Rank(1=bronze, 2=platinum, 3=grandmaster)",ylab="Pick rate %",main="Pick Rates of Defense")
- lines(Bastion, type = "l", col ="grey")
- par(new=TRUE)
- plot(Hanzo, col="green",ylim=c(1,55))
- lines(Hanzo, type = "l", col = "green")
- par(new=TRUE)
- plot(Junkrat,col="orange",ylim=c(1,55))
- lines(Junkrat, type = "l", col = "orange")
- par(new=TRUE)
- plot(Mei,col="red",ylim=c(1,55))
- lines(Pharah, type = "l", col = "red")
- par(new=TRUE)
- plot(Torbjorn,col="brown",ylim=c(1,55))
- lines(Torbjorn, type = "l", col = "brown")
- par(new=TRUE)
- plot(Widowmaker,col="purple",ylim=c(1,55))
- lines(Widowmaker, type = "l", col = "purple")

- **SRTANKS**

-

- D.va<-c(35.15,28.88,34.19)

- Orisa<-c(13.36,   7.49, 6.57)

- Reinhardt<-c(24.67, 23.14, 11.85)

- Roadhog<-c(12.53, 15.48, 13.01)

- Winston<-c(9.44, 14.50, 26.60)

- Zarya<-c(4.85, 10.51, 7.79)

-

- plot(D.va, col="grey",ylim=c(1,40),xlab="Skill Rank(1=bronze, 2=platinum, 3=grandmaster)",ylab="Pick rate %",main="Pick Rates of Tanks")

- lines(D.va, type = "l", col ="grey")

- par(new=TRUE)

- plot(Orisa, col="green",ylim=c(1,40))

- lines(Orisa, type = "l", col = "green")

- par(new=TRUE)

- plot(Reinhardt,col="orange",ylim=c(1,40))

- lines(Reinhardt, type = "l", col = "orange")

- par(new=TRUE)

- plot(Roadhog,col="red",ylim=c(1,40))

- lines(Roadhog, type = "l", col = "red")

- par(new=TRUE)

- plot(Winston,col="brown",ylim=c(1,40))

- lines(Winston, type = "l", col = "brown")

- par(new=TRUE)

- plot(Zarya,col="purple",ylim=c(1, 40))

- lines(Zarya, type = "l", col = "purple")

- **SRSUPPORT**
-
- Ana<-c(9.59,15.11, 7.65)
- Lucio<-c(16.66,   11.55, 21.19)
- Mercy<-c(28.86, 24.06, 16.95)
- Moira<-c(28.05, 29.18, 20.48)
- Symmetra<-c(4.92, 1.73, 1.47)
- Zenyatta<-c(11.92, 18.37, 32.27)
-
- plot(Ana, col="grey",ylim=c(1,35),xlab="Skill Rank(1=bronze, 2=platinum, 3=grandmaster)",ylab="Pick rate %",main="Pick Rates of Support")
- lines(Ana, type = "l", col ="grey")
- par(new=TRUE)
- plot(Lucio, col="green",ylim=c(1,35))
- lines(Lucio, type = "l", col = "green")
- par(new=TRUE)
- plot(Mercy,col="orange",ylim=c(1,35))
- lines(Mercy, type = "l", col = "orange")
- par(new=TRUE)
- plot(Moira,col="red",ylim=c(1,35))
- lines(Moira, type = "l", col = "red")
- par(new=TRUE)
- plot(Symmetra,col="brown",ylim=c(1,35))
- lines(Symmetra, type = "l", col = "brown")
- par(new=TRUE)
- plot(Zenyatta,col="purple",ylim=c(1, 35))
- lines(Zenyatta, type = "l", col = "purple")

- Works Cited

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