



# Faction Before Blood

It's time for the Choosing Ceremony, and everyone needs to decide which faction they will belong to for the rest of their life.

The Choosing Ceremony takes place at the Hub every year, where sixteen year olds need to choose upon one of the five factions: Abnegation, Erudite, Amity, Dauntless and Candor. Each faction follows a virtue; Abnegation are selfless, Erudite are intelligent, Amity are peaceful, Dauntless are brave and Candor are honest.

Tris chose Dauntless, whereas her brother Caleb chose Erudite. Four belongs to Dauntless, and is amongst the leaders. Abnegation is led by Marcus Eaton, Erudite by Jeanine Matthews, Amity by Johana Reyes, Dauntless by Eric and Candor by Jack Kang. Along with these factions, we have Factionless people who want to regain their rights and are led by Evelyn Johnson-Eaton.

Amity, Candor and Abnegation are not against the Divergents, whereas Erudite and Dauntless want to eradicate the existence of any Divergents. The Factionless have become aware of Jeanine's plans for domination, and hence have decided to help Tris and Four. Although Tris and Four belong to Dauntless, they are truly Divergent and do not fit it any of the factions. Your task is to help Tris and Four reach beyond the Fence and meet the rest of the mankind.

There is a wireless 1800 at Dauntless, and one MLS each at Erudite, Candor and Abnegation. The Amity and Hub are switches incapable of routing. Factionless Living Quarters and the Pit are routing devices. You have to name all of your devices as Rack\_X\_{Device Name} where X = Rack number.

Before proceeding, you need to make an estimate of the number of people in each

faction. You have been assigned the space of 175.XX.230.240/20 where X is your rack

number. Dauntless have 1010 members in their faction. Erudite have 250 members

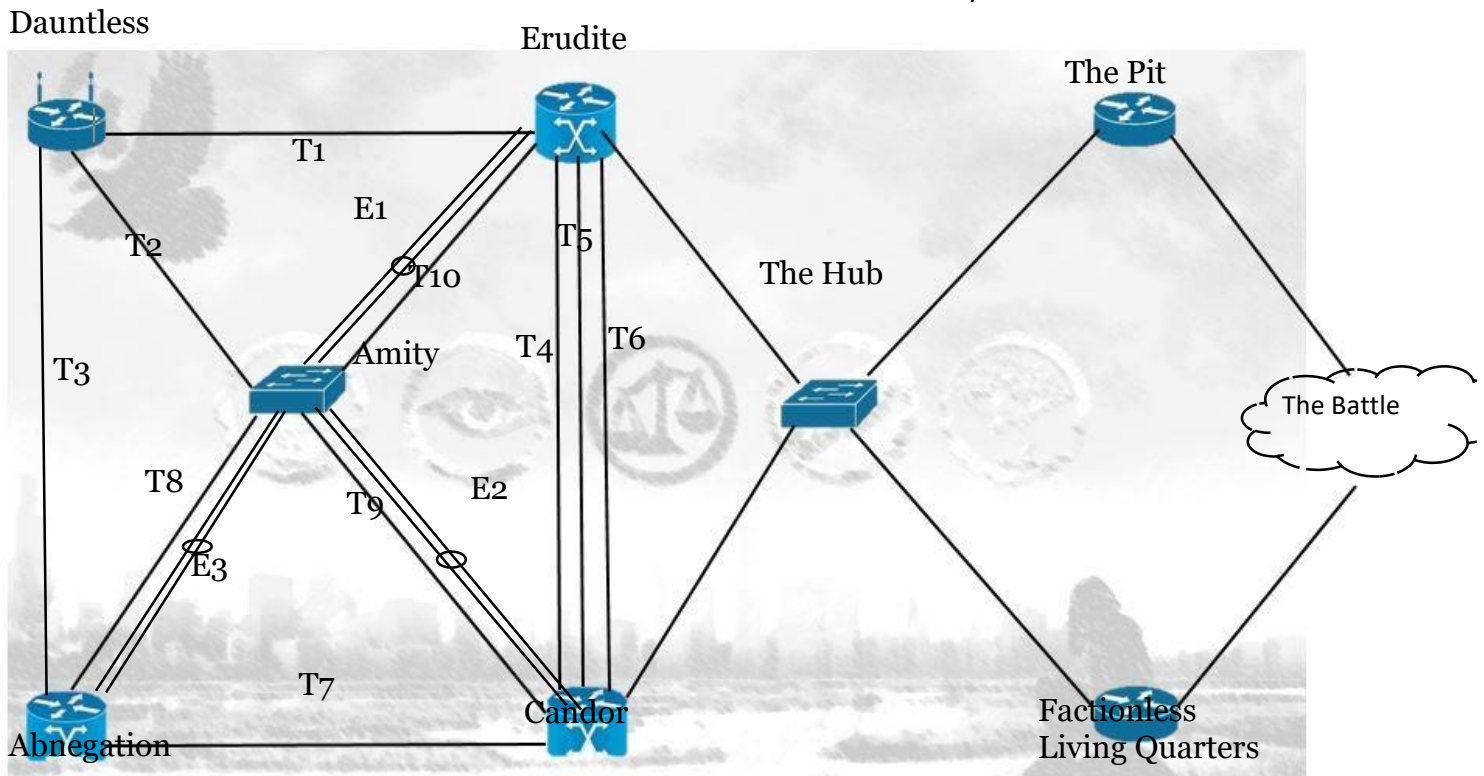
whereas

Candor has 148. Abnegation have 262 members and Amity has 200. There are 256 factionless members. Tris and Four manage to gather an army of 128 people.

However, be careful not to allocate any addresses in the ranges of

175.1X.228.20/22,

175.1X.236.16/23, 175.1X.238.10/24. You are to use 192.168.XX1.0/24 for your routed links.



Abnegation and Candor are providing all the database to Amity so that they stay up-to-date about the current situation of the battle. Erudite and Dauntless, being on the opposition, keep their plans secret and do not divulge it to the others.

Amity, being the ones doing all the farming, provide food supplies to all the factions. Candor has invested in 500 Mbps link from their headquarters to the Amity headquarters. The Abnegation have invested in 1200 Mbps link from their headquarters to the Amity headquarters. In lieu with their peaceful nature, Johana uses a proprietary protocol where Amity initiates the transmission of the food supplies which is being received by the Candor and Abnegation headquarters. Jeanine is conspiring against throwing down Abnegation and is using Amity headquarters to export a simulation serum using a high bandwidth link. She has invested in 700 Mbps for this link for an IEEE standard protocol, with Erudite initiating the transport, which is received at the Amity headquarters.

One port on the Erudite does not allow any other user, but only Caleb to connect to it. This port is secured to shut down in case any anyone else tries to access it as she does not want anyone to know about her conspiracy. However, it recovers in 40 seconds. This secured port is aware of the identity of Caleb beforehand. One port on the Dauntless allows Tris and Four to connect to it. However, if any anyone else tries to connect to this port, this port restricts them from connecting. Both these ports on Erudite and Dauntless do not participate in the spanning tree. A port on Abnegation allows any two people from their clan to connect to it. If anyone else tries to connect to it, the port shuts down as they are protecting the Box which holds the truth behind the Divergents.

The layer 2 links are shared by all factions unless mentioned otherwise. E1 is constructed so that only Jeanine's traffic passes through it. The same is with E3; it only allows Abnegation's food to be on it, whereas E2 is only used to transport Candor's food.

Tris and Four, along with their friends, are trying to stand against Jeanine and protect the innocent people from Abnegation. They are also trying to protect their identity of being Divergent. Tris is seeking for help from her mother at Abnegation, and hence listens on T3. She is also trying to influence Caleb in Erudite about the wrong-doings of Jeanine. He is listening to her explanations on T1. As a result, Caleb and other 129 members now join the Divergents. Divergents are now stronger in count at 258 than Erudite at 120.

Jeanine has her wireless VLAN hidden at Dauntless as she secretly carries out her plan for domination. She has secured it with WPA2 security and configured it such that only her two chief executives can access it. Jack Kang also has his VLAN at Dauntless, which is open to all. The format of SSIDs is X\_NAME where X is your rack number. The people from the wired and the wireless domains of a given faction should talk to each other.

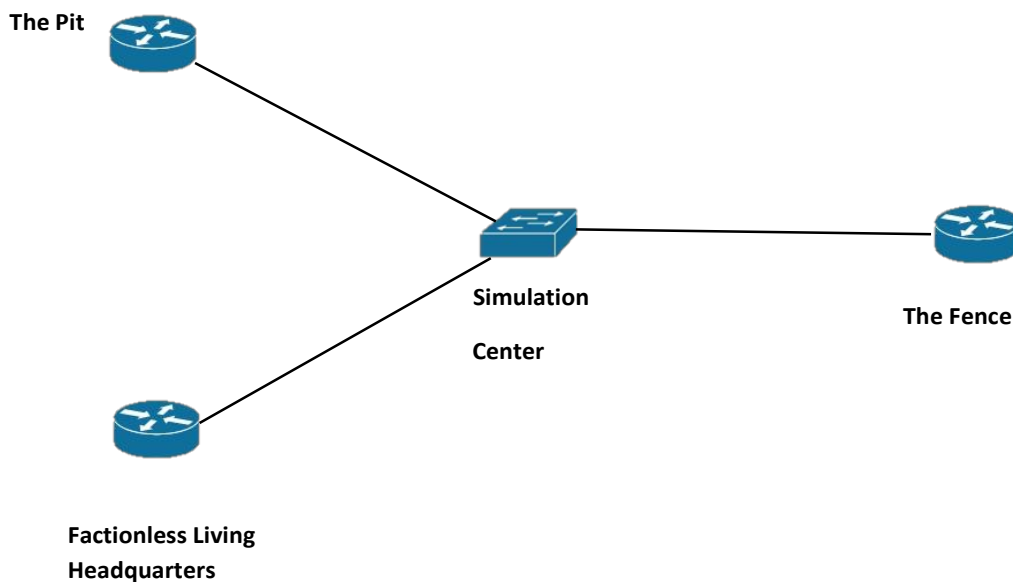
Marcus gets his IP address from Abnegation and uses Candor's headquarters to escape. Eric acquires his IP Address from Erudite whereas Jeanine gets her IP Address from Erudite itself. They both use Erudite's headquarters to carry out their attack against Abnegation. Evelyn acquires her IP address from Abnegation, using Candor to exit out. Johana gets her IP address from Candor and uses their headquarter as the escape route. Jack gets his IP address from the Candor headquarters and uses the headquarters itself as its exit point. The Divergents need to escape out from the factions and will use either Candor's or Erudite's headquarters, whichever would be possible for them. They acquire their addresses from the Factionless Living Quarters as Four's mother decides to side them in the battle.

The Divergents, being on the move cannot afford any routing protocol. The Anti-Divergent factions, use a proprietary protocol with AS 1 to route their information. The Pro-Divergent factions, being the liberal factions they are, use an open standardized link state protocol. They all use the same process id of 1. The Anti and Pro Divergent groups do not communicate among each other.

The Anti-Divergent use Erudite headquarters as the active gateway for their plan against the Divergent, whereas Pro Divergent have gathered at the Candor headquarters to gather number to put up a fight against Anti Divergent. In case their headquarters are attacked by the opposition, they will have to forcefully seek accommodation in the opponent's headquarters by accepting defeat. The Divergents are currently using Candor headquarters as their asylum during Jeanine's fight, but if they are attacked there, they will sneak into the Erudite headquarters. The Erudite and Candor headquarters have some means of communication to reach all the other factions. But if all their communication means are cut off, they will have to use the other headquarters. If they move to the other headquarters, they have to make sure they cut off all ties with the previous headquarters!

The Anti-Divergent are starting to execute their plan and reach the Erudite headquarters. The Pro-Divergent too have decided to team up and meet at the Candor headquarters. The Divergents, after moving through the headquarters, have decided to head out to The Hub and wait for help. They have with them the Box which holds the truth about the entire faction society they grew up in, and their job is to protect it. The Anti-Divergent are tipped off about Tris and Four's whereabouts and hence descend to the Hub. On seeing the Anti on move, the Pro also decide to reach the Hub to help Tris and Four. On sensing the approach of Anti towards the Hub, they seek their way to the Factionless Living headquarters to prepare for their battle against Anti. The Anti decide to strength their attackers and hence head towards the Pit to inject simulation serum in the soldiers to control them. Both the parties decide that if their restore points are compromised, they will launch an attack on the opposition's location and seek control over it.

### The Battle:



While connecting to the Simulation Center, Rack 1 uses the first two ports on the switch, Rack 2 uses the next two ports, and so on.

To reach the Fence, the Anti use 192.168.1XX.0/29 whereas the Pro use 192.168.2XX.0/39. The Anti have a badge access of 1XX to enter the Simulation Center, whereas Pro have the badge of 2XX. The Fence has been configured with the address of 192.168.1XX.1 and 192.168.2XX.1. Thus, carefully allot the addresses provided to you.

The Divergents uses 192.168.XX.0/29 to reach the Pentagon where Tris will try to complete all the simulations present in the Box so that they can unveil the message hidden in it. They require a badge of 3XX. Tris successfully completes all the simulations and the message is revealed: Divergents will help save the society. Hence, they charge ahead to the Fence using 192.168.XX.1. On their way back, the Divergent decide to reach at 192.168.xx.4 and meet with

Tris's brother and Four's father. They have decided to maintain same translations in both the Pit and Factionless Living Quarters before heading to the Simulation Center as a redundancy measure. They want to go beyond the Fence and meet the rest of the mankind and hence need to change their identity to 100.64.XX.0/24.

All the teams; the Anti, the Pro and the Divergents gather at the Fence where the battle begins. The Divergents, along with the Pro fight against Jeanine to throw down her dynasty. With the truth being revealed, the Anti were soon defeated. Everyone is rejoicing, but in all these celebration, ensure that you only accept traffic meant for your faction network.

After the celebrations, the Anti are being sent back to their headquarters. On their return path, they are taken to the Factionless Living quarters, where they are mocked at. Later, they are sent back to Candor headquarters, where Jeanine is held guilty and thrown in jail. The Pro, too, head back to overthrow the camps setup by the Anti during the battle. They first head to the Pit where they destroy the simulation serum camp. They later head back to Erudite's headquarters where they take over Jeanine's office.

The Divergents have decided to go back and meet their friends who helped them during the battle. They decide to go to the Pit on their way back, in search of their friends and family. But if they can't find them there, they will go to the Factionless Living Quarters. They will later head out to Erudite's headquarters and hand over the Box to the leaders.

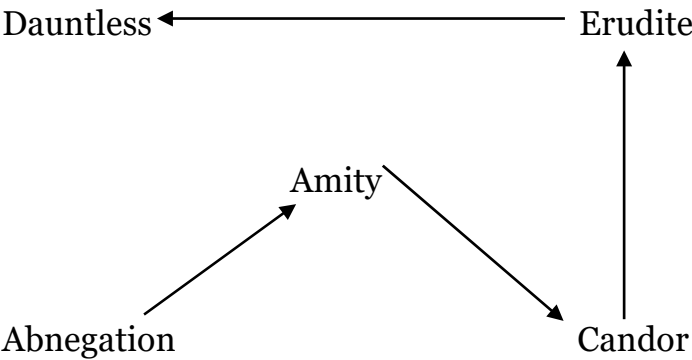
#### Extra Credit: SSH

For snooping, Jeannie needs access to the headquarters of all the factions using SSH. Since, the factions had hired ITP Alumni as their network engineers, they have not allowed access to port 22. However, Professor Jose has asked you to find your way around it and help Jeannie for this bit. You have access to consoles of all the devices. You have to find a way to configure the devices such that the ITP Alumni do not know of your treachery! He has given you 2 IP addresses -100.64.XX.1 and a public IP (will be given later). Use ports XX5, XX6, XX7 and XX8 to SSH into Abnegation, Dauntless, Erudite and Candor.

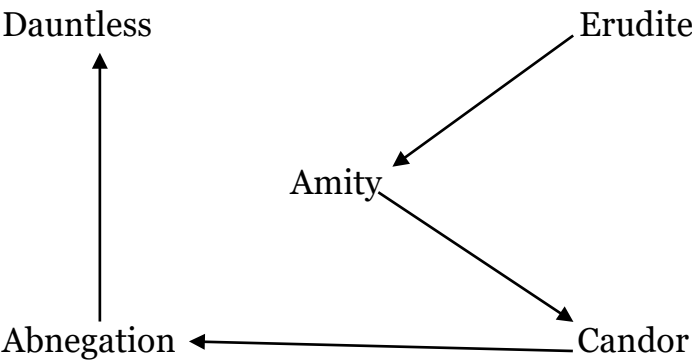
Good luck with succeeding in your mission!

STP Shapes:

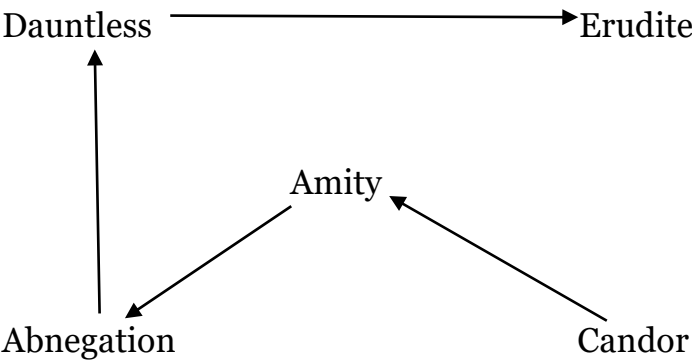
**Marcus**



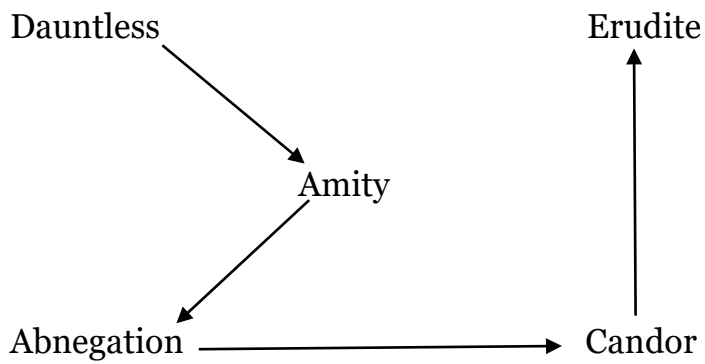
**Jeanine**



**Jack**



## Divergents



Link T5 should be up first, if it fails link T6 should come up and if that also fails link T4 should come up