Weekly blogs - week 1

This week we got our hands on our raspberry pi and began by installing squid onto it. We familiarised ourselves with how to use the squid proxy by watching youtube videos, reading through documentations and playing around with the configuration file. We figured out how to block websites by denying their domain (e.g .youtube.com) and also how to block certain devices from connecting to the squid entirely by denying their ip address. We also discovered we could whitelist websites and only allow connected devices to use these websites and block all others. We ran speed tests to see if internet speed was affected when a device was connected to the squid. We also began researching how we were going to update the configuration file of the squid proxy remotely.

Weekly blogs - week 2

We first started up an ssh server on the raspberry pi and used this to edit the configuration file of the squid. However we realised that the android app would be written in java and that we would need to find a way to do this in java. We then discovered Jsch which we could use to connect to the ssh server and execute commands on the raspberry pi’s command line. We then began making commands that the app would need to execute using Jsch, which included switching between using blacklisting and whitelisting, adding websites to be blocked using blacklisting and then removing them and adding websites to be allowed by whitelisting and then also removing them. This was done by having text files which we would for example add domains of websites that we would not like devices to connect to, we then deny this text file in the squid’s configuration file and now devices connected to the squid were no longer allowed to use these websites

Weekly blogs - week 3

At the start of the week we familiarised ourselves with app development in android studio. When we felt sufficiently familiarised we created the UI we would need in order to implement the features we intended for the app. We began writing the java code for the sign in page and the main page. We also began collecting the mac address of devices that were connected to the squid and used a shell script to do this. This shell script ran the arp -a command which would show all the devices connected to the squid proxy and their mac address would be the 4th entry on each line so the shell script would go through each line and add the mac address into a text file.

Weekly blogs - week 4

This week we made more java commands using jsch that would allow users to supply a website and we would add this website to a text file which would then be used to block this website for this specific user only and not affect other users connected to the proxy. This gives users the ability to better manage their home network. We then used this knowledge to make another command that would only allow users access to the internet between a given time period. Another command would take in a mac address and a nickname for this mac address and put them side by side in a text file that would be used on the app to show users the name they give to a device (e.g Aaron’s phone) instead of the device's mac address. We fully implemented features that let you add websites to a blacklist or whitelist and also a feature to switch between the two ways of restricting access to websites.

Weekly blogs - week 5

This week we switched from allowing users to connect to the squid proxy off mac addresses to creating users. We did this using htpasswd which would store usernames and passwords that squid could use for basic authentication. When a user is created the files and lines in the squid configuration file needed to control this users individual blacklist that only blocks sites for them and set time limits to users to only allow them access to the internet in a set time frame are added, which is done using a series of jsch commands. We came into trouble with whitelisting as any website that hosts their content such as images and videos on a separate domain (such as youtube whos videos are hosted on a domain called gstatic.com) are not allowed through the proxy. For this reason we have had to remove the whitelisting feature and stick to using blacklisting as we originally set out to do.

Weekly blogs - week 6

This week we began to look at the access logs of squid and how we would display this for users on the app. A shell command was written to first format the access logs in a more readable way as they are not readable to an average user as they were. Then piping this into a series of grep commands we were able to gather a specific users logs and also only logs that were not denied. We then found a way to print each website only once and display a counter to how many times the website appeared in the logs beside it to ensure users were not scrolling through endless lists. We then added this feature along with setting individual time limits and blacklists for users onto the app to test if they still worked there.

Weekly blogs - week 7

We began to work on the UI of our app to prepare it for user testing. We made sure that the app was easy to navigate and that all features were properly working. We made sure to keep the design consistent across the app and used common elements so users can use the ui intuitively and it is easy to learn. We were slowed down this week from the final submissions of the modules we were taking this semester.

Weekly blogs - week 8

This week we had our final meeting with our supervisor Darragh to show him a demo of our app and find out what final changes we could make and what we would need for the actual demo next week. One suggestion from Darragh was to allow the parent user to see a user's activity from either that day or the previous week, which we implemented. We also completed all the documentation that was to accompany the submission of our app. We also had our user testing where we invited students in our course to test our app and fill out an anonymous survey giving us feedback on what they thought of the experience. The user testing was mainly for the UI of the app and the feedback gave us insight into some final colour schemes and layouts we could use for the final submission.