# NAPIER UNIVERSITY
# KENNETH BROWN - 40090523
# GROUP PROJECT 2021
# SELF-EVAULATION

Team 14 – Penetration Testing Scenario

Project Manager:  Kenneth Brown

PM Support/ Server Administrator: Davide Pisanu

Security Team Manager: Tom Neil

Security Team: Luis Loaysa

Web Team Manager/ Back-End Developer: Connor Grattan

Web Team / Front-End Developer: Jake Salt

Project Client: Robert Ludwiniak

Project Sponsor: Andrew Partridge

# Contents

# Section 1 - Introduction

This report is for the purpose of conducting a personal self-evaluation and critical reflection on my actions and their results throughout my recently completed Group Project. To do this I will be using the STARL format as outlined by the module. My team consists of six members whose names and roles can be found on the cover page to this document. My own role within the team was as the project manager and our client was Napier's own Digital Forensics lecturer, Robert Ludwiniak.

The previously mentioned STARL structure requires that I highlight three specific events within the project which clearly show demonstrations of key behavioural indicators, relating to certain categories. These categories are Teamwork, Project Management and Drive for Results. These make up the various sections in this report and the behavioural indicators which correspond to each will be clearly listed at the beginning of each section and referenced in their conclusions. Evidence which directly relates to these situations can be found in the Appendix section.

My project's goal was to deploy a virtual security penetration testing scenario, to be used later for developing fourth year Cybersecurity labs. Inside the scenario Robert asked us to include a server and an E-commerce website which was vulnerable to web-based malicious attacks such as SQL injections and Cross-Site Scripting. He also asked that we not rely on any legacy OS versions or known exploits from before 2012 so that he could attempt to maintain a sense of realism within the scenario and to make improvements on some of the current labs, which still often demonstrate modern pen-testing techniques on relatively outdated operating systems such as Windows Server 2003.

At its conclusion, the project was quite successful, which is reflected in the overall satisfaction ratings taken by myself from both my team and client for the final weeks Project Health Register. My team was able to develop a scenario to most of Robert's specifications and deployed five different successful penetration tests against this virtual network and its E-commerce site. Robert has asked that the team remain contactable regarding any future developments and expressed a great deal of satisfaction with the quality of work that went into our final product.

Our success did not come without its obstacles and this self-evaluation will focus on some specific events within the project where I was presented with challenging situations and, as the project manager, had to overcome them to make effective progress. It should also be noted that despite being quite successful overall, the project did not manage to achieve all its desired MOSCOW requirements. There are numerous layers of essential security removed from the network and many legacy features which would not commonly be found on an E-commerce network such as un-sanitized SQL product search bars. This is something I hope to return to later and make improvements upon both to improve my own security skillset and to provide Robert with a dynamic and quality product.

## Section 2 – Teamwork

**Behavioural Indicators demonstrated in this section: -**

- **Exemplary -** *Works to resolve conflicts by showing respect for others' opinions and working toward mutually agreeable solutions.*
- **Positive -** *Listens to others and works to reach a compromise.*
- **Positive -** *Openly and diplomatically addresses conflicts as they arise.*

One of Robert's main requirements for the project was that the team produce an E-Commerce website hosted on a server. Despite the security focussed nature of this project, it meant that the team also needed members who were skilled in web development. Our web team consisted of two members, Connor Grattan, and Jake Salt. Connor was the web team lead and responsible for the back-end development whilst Jake was responsible for developing the front-end to the site and exploring potential web exploits within the scenario. Both members have strong web-dev skillsets but an issue that arose in the early stages of the project was that neither member had much prior experience in developing websites as part of a team.

I had deployed several GitHub repositories for the team to use for documentation and source code. Both members of the web team were working off the same source code and were expected to communicate amongst one another regarding important live updates to the site. It was brought to my attention through an online group chat in Discord that Jake was not communicating as as actively as he should be and was pushing changes to the site which were rendering Connor's work obsolete. The issue was not voiced by Connor to me directly at the time, but it was clear from the conversation that this was inconvenient and needed to be addressed to avoid a potential conflict later in the project. (**Appendix 1.1**) After noticing this, I contacted Connor to see if anything had changed, address any possible concerns, and offer my own subsequent input into this situation (**Appendix 1.2**).

Connor told me that things had not yet reached a problematic stage at this point but if the matter were left unchecked then it potentially could (**Appendix 1.2**). I decided that instead of addressing Jake privately and asking him to produce the work as soon as possible that I would instead make the issue slightly more public and address it through our web development Discord channel (**Appendix 1.3**). The purpose of this was to possibly allow Connor's input into the conversation as I felt it was essential that the two teammates start communicating with one another.

After asking Jake in the group chat when he would be able the deliver to work, he responded quickly and made great efforts the same day to deliver what was required of him. Connor did not have any input on this occasion and was able to complete his changes to the back end of the site. I took this opportunity to address every member of the group individually to remind them of the subsequent tasks they were now to complete. By doing this I hoped to not single Jake out in any way but make him realize that he was being counted on by the rest of his team to complete future tasks more promptly (**Appendix 1.4**). This was also a means of including everybody into the conversation to encourage future teamwork via Discord. This was particularly important to me as it was my main method of communication with the rest of the team within lockdown restrictions.

This was ultimately the first and only situation I was involved in that involved a breakdown in teamwork and communication. Connor was able to begin effectively communicating what he was doing or needed via the public discord (**Appendix 1.4**) and there were no further incidents involving the contributions from Jake or any other member of the group. By focussing quickly on navigating the issue without the need for any conflict, I was able to create a greater bond amongst the teammates, which I feel was beneficial to our overall outcome. I was able to effectively listen to what others had to say whilst still taking into consideration the opinions of my teammates. By openly and diplomatically addressing this issue in our public group chats, without singling anybody out, I sought to elevate our overall potential levels of efficiency. From this situation I learned a great deal about coordinating efficient teamwork efforts, conflict prevention and project management. These are experiences that I hope to draw knowledge from in my future projects.

## Section 3 – Project Management

**Behavioural Indicators demonstrated in this section: -**

- **Positive -** *Keeps others informed of progress and outstanding issues*.
- **Positive -** *Spends time up-front planning an approach and develops reasoned and feasible work plans.*
- **Positive –** *Takes account for other people's competing priorities.*

In the early weeks of the project, it was made known to me through the regular module classes that my group was expected to be keeping track of weekly/overall team contributions. A spreadsheet was provided for measuring this, with the weekly totals to be averaged for an overall contribution score after the full 12 weeks of the module. The obstacle that I personally encountered here was being tasked with the creation and fair management of this system. The other members of the team were extremely busy with the set-up for the scenario whilst I was just conducting research for them at this point. My main issue was that I am a non-confrontational person and keeping track of the individual members contributions to the project felt like there was a high potential for confrontation if it was not done fairly for everyone involved. I did not like the idea early on that I may potentially have to single somebody out that I was unfamiliar with and make academic demands of them. Given that everyone has been working remotely this year and having not met the other team members in person, this sense of unease surrounding a potential conflict was further heightened.

The main task that was required of me here was to develop a system which would accurately recognise and reflect if a group member had made significant contributions that week, whilst simultaneously not singling out individual members publicly if they had not met their weekly requirements. A further issue that this posed for me was, how then to measure the negative effects accurately without directly addressing members about their lack of contribution that week? I wanted this system to motivate my team members to work hard but did not want it to change the teams' dynamics negatively.

The way in which I developed my final system for measuring was done in the fairest way I could think of. My initial plan was to implement a group voting system where each person voted for someone else in the group to name a contribution that they had made for the week. Receiving a vote would give that member a 10% boost to their weekly score. I also told members that they should submit a vote for themselves which would award them with a 5% boost. This was so I could help my team mates to become more self-reflective about the work that they were carrying out through the week. Every member began with an equal split of the weekly contributions which was 16.7% (**Appendix 2.1**). This system was not effective using the original planned voting amounts, however.

After the first week of trying to use this system, I quickly found that awarding 10% and 5% boosts created an enormous discrepancy between the members final totals. If a member did not happen to receive any votes it was entirely possibly that they would find themselves with a final contribution of under 10% whilst member who received more than one could potentially reach 40-50%. This directly opposed my wish for this system to be fair and felt that using it this way would open the doors for future conflict within the group. To counter this issue, I decided to try the same system with smaller numbers, awarding 4% for all types of vote. This would also result in every member not involved in a particular vote would see a penalty of 2% to compensate the difference. I explained this new system to the group, and it was approved for use (**Appendix 2.2**).

Whilst this system was ultimately successful in achieving what I set out for it to do there were still some issues left unaccounted for. If a member had made a significant contribution for the week but did not receive a vote, then this could still result in them seeing negative results. To avoid this, I made it clear to the group that these numbers were not finalised after voting. If any member had any issues with their totals, then I told them they were welcome to speak out either publicly or privately to myself (**Appendix 2.3**). There were three weeks when this system was changed slightly to accommodate such requests. In week 3 myself and Connor both received many votes, bringing our weekly contributions to over 28% each. I did not feel that either of us had worked hard enough to merit this large discrepancy over the rest of the group and asked Connor if he would be happy to give up one vote along with myself so I could spread it amongst the rest of the team. Connor was not happy with this however as it would bring his overall contribution down, which was already amongst the groups lowest at this point (**Appendix 2.4**). Instead of taking this approach I instead decided to deduct 6% from my own score and award 3% to both lowest scoring members that week. Weeks 9 and 12 I decided not to ask for votes but instead arranged one group vote to keep the weekly contributions at an equal 16.7%. This was done because on both weeks I felt that my team had all performed exceptionally well and there was no need to debate as to who had done more or less than the other. The group voted in favour of using this method on both occasions (**Appendix 2.5**).

This system was used for the duration of the project and was ultimately without too much issue. I learned new skills in project management such as ways of effectively avoiding conflict whilst still taking the project goals into consideration. I learned how peoples competing priorities can be utilised in a positive way to encourage friendly competitiveness within the team. I enjoyed the process of spending time to plan and then put that plan into action to analyse my own performances. Using this system to nominate other people was also good for team bonding as it helped me and the other members recognise more effectively the hard work that was going into the project by our teammates.

## Section 4 – Drive for Results

**Behavioural Indicators demonstrated in this section: -**

- **Exemplary -** *Readily tackles demanding tasks.*
- **Positive -** *Demonstrates motivation and commitment to achieving project outcomes.*
- **Negative -** *Over-complicates processes.*

After conducting extensive security research through the planning stages of the project I had asked each team member to thoroughly document their methods and findings within the virtual environment. In total there were five different reports submitted, each of varying length and complexity.

One of the challenges I faced as the project manager in this situation was a language barrier that existed partially within our group. This barrier did not affect our internal communications in any way and only ever presented itself within the individually written pieces of documentation. The research and practical work that was carried out in all members' cases was done so to a very high standard, however, the written work was not always reflective of this and could often be confusing from the reader's perspective. Whilst this is not a criticism of the team members responsible it was still an issue that had to be addressed.

Having worked closely with each member of the team and keeping an ongoing, invested interest in their outcomes for the project, I knew each component of our pen-testing scenario extremely well. As the project manager, I felt that it was my responsibility to ensure that the final copy of any work that was submitted should be reflective of the level of effort that had been put in by the responsible member of my team.

My main task was to produce a final document for Robert which he could easily read and understand using a normal document structure (i.e., dynamic table of contents, page numbering, etc). This document also had to be used as the main point of reference for our final report as supporting evidence for the completion of the MOSCOW requirements, set at the beginning of the project. As a failure on my part as the project manager, I had not specified any format that each group member should submit their exploit documents in. This resulted in some cases of creative freedom coming before the reader's practicality. I did not feel it would appear to be professional to the client if I presented these documents as they were in a variety of different states.

The previously mentioned language barrier meant that in some cases, extensive editing was needed to convey the message clearly for our client. Because I was so familiar with each exploit, I already knew what the writer was trying to convey. This meant that I could rewrite relatively large sections of reports to correct things such as sentence structure and grammatical errors to make it clearer for our final product, whilst still maintaining the validity of information in the report itself.

What was originally anticipated to be a relatively quick task became a full days' work. The smallest report was two pages long whilst the longest was ten pages. Every document had to be converted from a PDF into a word document and then have its contents copy/pasted into the new final document. Font and Heading styles had to be corrected for the dynamic contents page and the sections had to be organised to present a logical exploit path structure for the reader. Entire sections had to be reworded to convey the proper meanings to its reader. The final document which was submitted was 41 pages long and over 8000 words cumulatively across the whole groups work.

This was a valuable learning experience for me for several reasons. To focus on a negative side of things, the behavioural indicator of '*over complicating processes'* was demonstrated here in my lack of ability to pre-empt the situation where all of the reports would arrive with different formatting. This complicated the process of handing in work to the client by requiring me to construct the new document from scratch when the time could have potentially been spent working on our presentation. I learned how to effectively manage my time better and decided that in future projects I would ensure that a document template was provided in advance for any required team documentation.

From a positive perspective I feel that this situation allowed me to focus on my project management skills and develop them further. I also feel that this demonstrated the behavioural indicators motivation, commitment, and a willingness to readily tackle challenging tasks. I learned a great deal from carrying out this task regarding documentation management & presentation. This is the first time I have had to collate a large amount of work from other people together into one space and managing this task helped me to challenge myself to produce work and exceed expectations.

The evidence provided shows a single excerpt from the group's documentation. The first shown is prior to editing for the final submission and includes examples of the grammatical errors that were found throughout. The second shows the same area of text after I had finished editing the final document (**Appendix - 3.0**). The full document, as well as the individual team document contributions, can be found at the GitHub repository linked in the appendix for a full review. The main document in question is called *'Penetration Testing Scenario – Exploit Documentation.pdf'* and is found in the parent directory. The individual documents can be found within each team members named folder.

# Section 5 - Conclusion

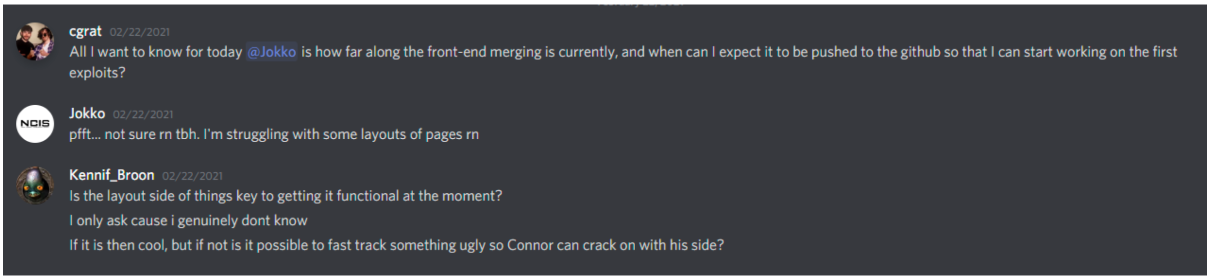
My performance throughout this project has been good as seen in the team satisfaction register where I scored in the region of 80 – 90% overall satisfaction for my project management. It has not been without challenges, as shown in this self-evaluation, but I feel that these challenges were overcome and provided me with excellent learning experiences. Some of the skills I would like to develop moving forwards are my ability to more pro-actively approach team confrontations. This was something I actively avoided throughout the duration and thankfully there were not many major arguments for me to intervene in. This could have been different however and it would be a useful skill to be given an opportunity to develop later.

In conclusion this project has been a very positive experience for me. Facing the challenge of working remotely this year was greatly relieved by having the opportunity to work closely with other students. The teammates I worked with were all highly motivated and enthusiastic individuals that made managing the project an enjoyable experience. Through developing my core skills in Teamwork, Project Management, and the Drive for Results I feel confident that I can carry these over to the next student project and hopefully my future career.

# Appendix

## 1.0 - Teamwork – Evidence

### 1.1

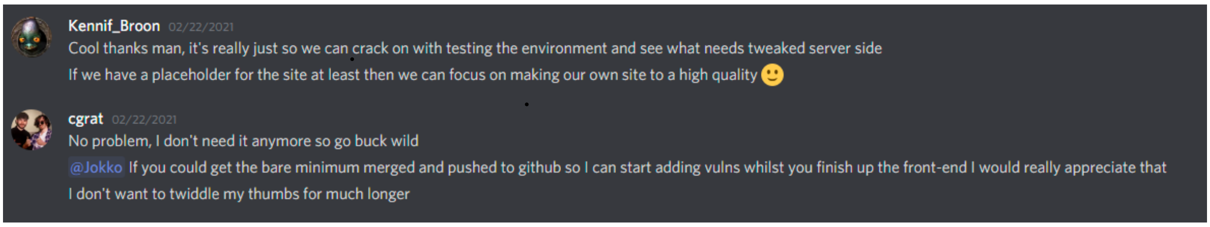


cgrat 02/22/2021
All I want to know for today @Jokko is how far along the front-end merging is currently, and when can I expect it to be pushed to the github so that I can start working on the first exploits?

Jokko 02/22/2021
pfft... not sure rn tbh. I'm struggling with some layouts of pages rn

Kennif_Broon 02/22/2021
Is the layout side of things key to getting it functional at the moment?
I only ask cause i genuinely dont know
If it is then cool, but if not is it possible to fast track something ugly so Connor can crack on with his side?

---Irrelevant to self-evaluation---

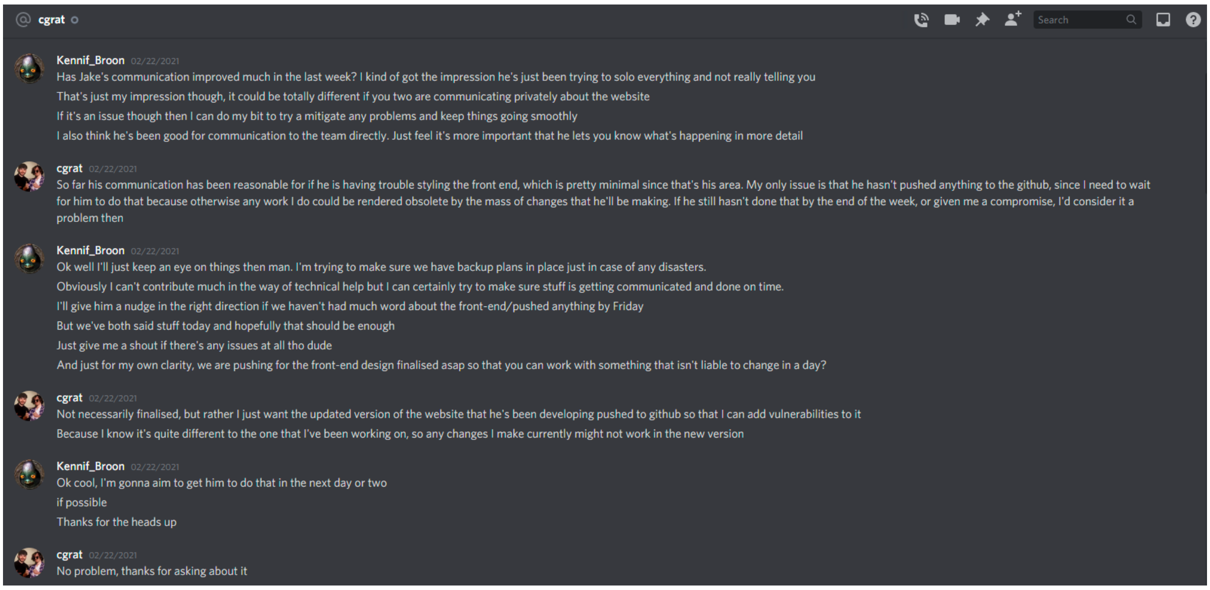


Kennif_Broon 02/22/2021
Cool thanks man, it's really just so we can crack on with testing the environment and see what needs tweaked server side
If we have a placeholder for the site at least then we can focus on making our own site to a high quality 🙂

cgrat 02/22/2021
No problem, I don't need it anymore so go buck wild
@Jokko If you could get the bare minimum merged and pushed to github so I can start adding vulns whilst you finish up the front-end I would really appreciate that
I don't want to twiddle my thumbs for much longer

***Discord Chat Log** – Public Group Messages on Team Web-Dev Channel (22/02/2021)*

### 1.2



Kennif_Broon 02/22/2021
Has Jake's communication improved much in the last week? I kind of got the impression he's just been trying to solo everything and not really telling you
That's just my impression though, it could be totally different if you two are communicating privately about the website
If it's an issue though then I can do my bit to try a mitigate any problems and keep things going smoothly
I also think he's been good for communication to the team directly. Just feel it's more important that he lets you know what's happening in more detail

cgrat 02/22/2021
So far his communication has been reasonable for if he is having trouble styling the front end, which is pretty minimal since that's his area. My only issue is that he hasn't pushed anything to the github, since I need to wait for him to do that because otherwise any work I do could be rendered obsolete by the mass of changes that he'll be making. If he still hasn't done that by the end of the week, or given me a compromise, I'd consider it a problem then

Kennif_Broon 02/22/2021
Ok well I'll just keep an eye on things then man. I'm trying to make sure we have backup plans in place just in case of any disasters.
Obviously I can't contribute much in the way of technical help but I can certainly try to make sure stuff is getting communicated and done on time.
I'll give him a nudge in the right direction if we haven't had much word about the front-end/pushed anything by Friday
But we've both said stuff today and hopefully that should be enough
Just give me a shout if there's any issues at all tho dude
And just for my own clarity, we are pushing for the front-end design finalised asap so that you can work with something that isn't liable to change in a day?

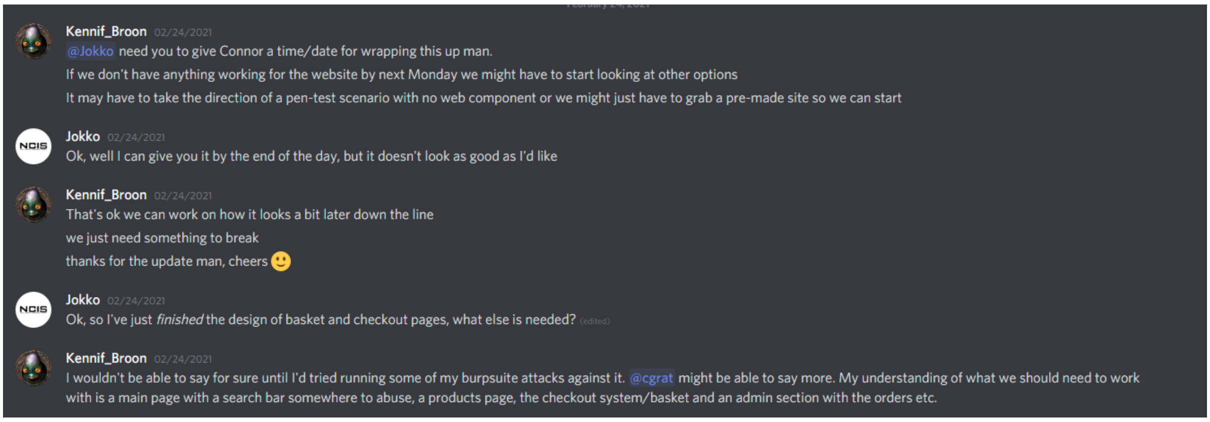
cgrat 02/22/2021
Not necessarily finalised, but rather I just want the updated version of the website that he's been developing pushed to github so that I can add vulnerabilities to it
Because I know it's quite different to the one that I've been working on, so any changes I make currently might not work in the new version

Kennif_Broon 02/22/2021
Ok cool, I'm gonna aim to get him to do that in the next day or two
if possible
Thanks for the heads up

cgrat 02/22/2021
No problem, thanks for asking about it

***Discord Chat Log** – Private Message between Myself and Connor (24/02/2021)*

## 1.3



Kennif_Broon 02/24/2021

@Jokko need you to give Connor a time/date for wrapping this up man.

If we don't have anything working for the website by next Monday we might have to start looking at other options

It may have to take the direction of a pen-test scenario with no web component or we might just have to grab a pre-made site so we can start

Jokko 02/24/2021

Ok, well I can give you it by the end of the day, but it doesn't look as good as I'd like

Kennif_Broon 02/24/2021

That's ok we can work on how it looks a bit later down the line

we just need something to break

thanks for the update man, cheers 🙂

Jokko 02/24/2021

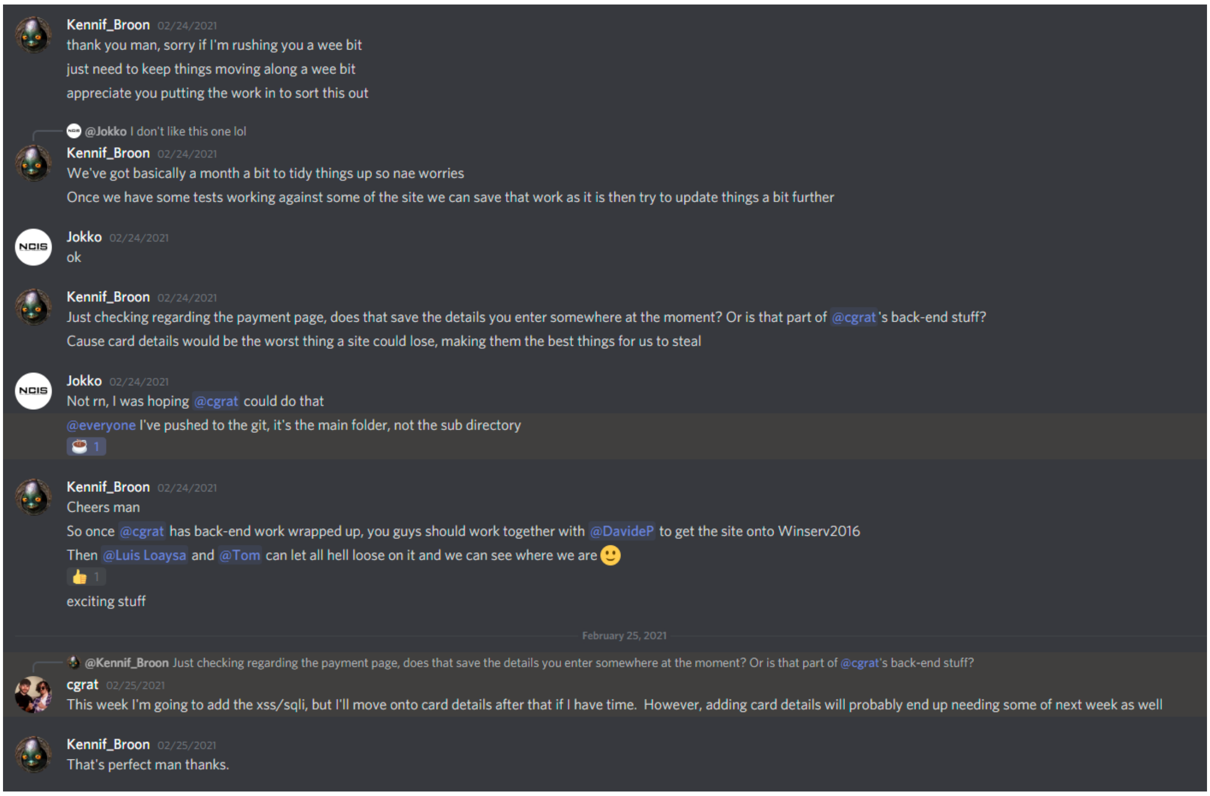
Ok, so I've just *finished* the design of basket and checkout pages, what else is needed? (edited)

Kennif_Broon 02/24/2021

I wouldn't be able to say for sure until I'd tried running some of my burpsuite attacks against it. @cgrat might be able to say more. My understanding of what we should need to work with is a main page with a search bar somewhere to abuse, a products page, the checkout system/basket and an admin section with the orders etc.

***Discord Chat Log** – Public Group Messages on Team Web-Dev Channel (24/02/2021)*

## 1.4



Kennif_Broon 02/24/2021

thank you man, sorry if I'm rushing you a wee bit

just need to keep things moving along a wee bit

appreciate you putting the work in to sort this out

@Jokko I don't like this one lol

Kennif_Broon 02/24/2021

We've got basically a month a bit to tidy things up so nae worries

Once we have some tests working against some of the site we can save that work as it is then try to update things a bit further

Jokko 02/24/2021

ok

Kennif_Broon 02/24/2021

Just checking regarding the payment page, does that save the details you enter somewhere at the moment? Or is that part of @cgrat's back-end stuff?

Cause card details would be the worst thing a site could lose, making them the best things for us to steal

Jokko 02/24/2021

Not rn, I was hoping @cgrat could do that

@everyone I've pushed to the git, it's the main folder, not the sub directory

☕ 1

Kennif_Broon 02/24/2021

Cheers man

So once @cgrat has back-end work wrapped up, you guys should work together with @DavideP to get the site onto Winserv2016

Then @Luis Loaysa and @Tom can let all hell loose on it and we can see where we are 🙂

👍 1

exciting stuff

February 25, 2021

@Kennif_Broon Just checking regarding the payment page, does that save the details you enter somewhere at the moment? Or is that part of @cgrat's back-end stuff?

cgrat 02/25/2021

This week I'm going to add the xss/sqli, but I'll move onto card details after that if I have time. However, adding card details will probably end up needing some of next week as well

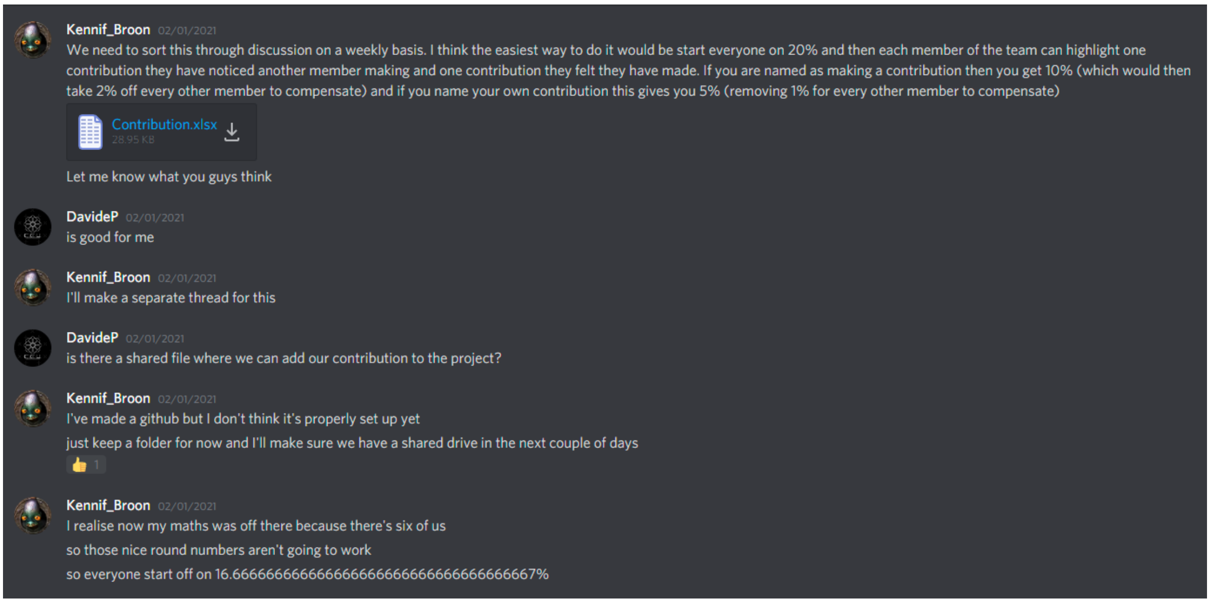
Kennif_Broon 02/25/2021

That's perfect man thanks.

***Discord Chat Log** – Public Group Messages on Team Web-Dev Channel (24/02/2021)*

# 2.0 - Project Management - Evidence

## 2.1



**Kennif_Broon** 02/01/2021
We need to sort this through discussion on a weekly basis. I think the easiest way to do it would be start everyone on 20% and then each member of the team can highlight one contribution they have noticed another member making and one contribution they felt they have made. If you are named as making a contribution then you get 10% (which would then take 2% off every other member to compensate) and if you name your own contribution this gives you 5% (removing 1% for every other member to compensate)

Contribution.xlsx
28.95 KB

Let me know what you guys think

**DavideP** 02/01/2021
is good for me

**Kennif_Broon** 02/01/2021
I'll make a separate thread for this

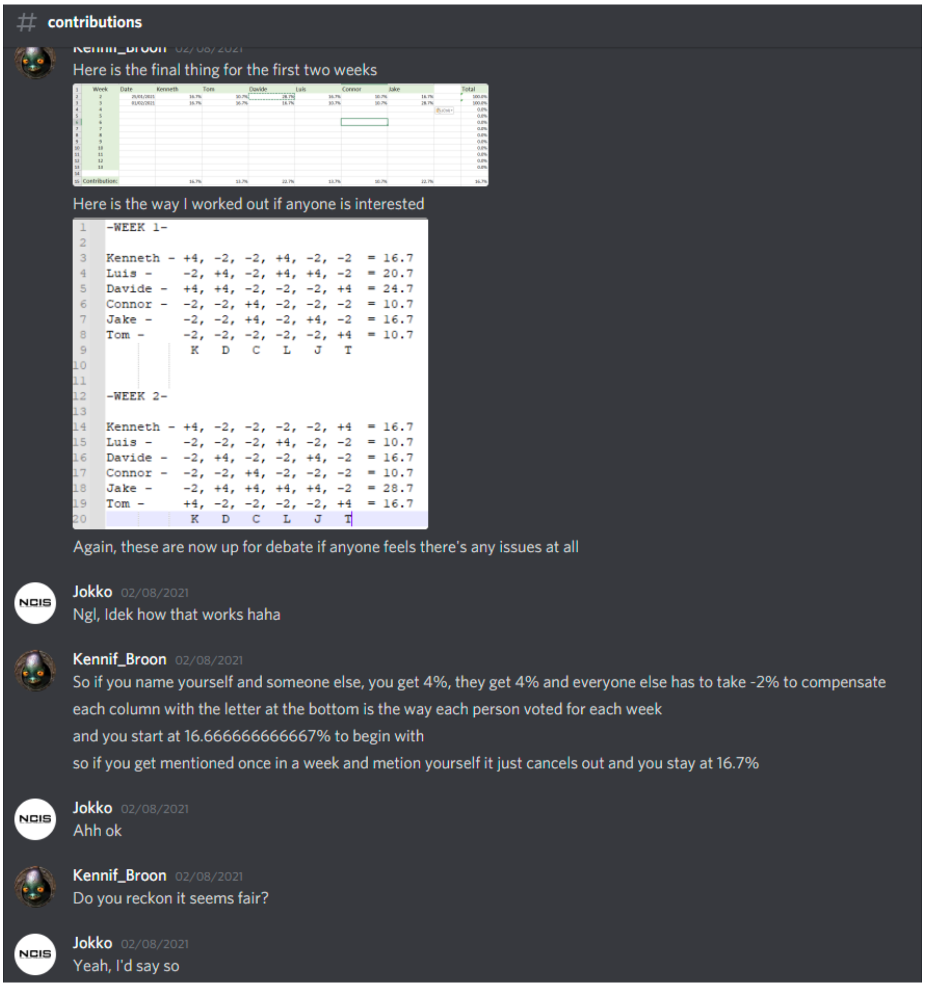
**DavideP** 02/01/2021
is there a shared file where we can add our contribution to the project?

**Kennif_Broon** 02/01/2021
I've made a github but I don't think it's properly set up yet
just keep a folder for now and I'll make sure we have a shared drive in the next couple of days
👍 1

**Kennif_Broon** 02/01/2021
I realise now my maths was off there because there's six of us
so those nice round numbers aren't going to work
so everyone start off on 16.666666666666666666666666666666666667%

*__Discord Chat Log__ – Public Group Messages on Contributions Channel (01/02/2021)*

## 2.2



**contributions**

**Kennif_Broon** 02/08/2021
Here is the final thing for the first two weeks

| | Week | Date | Kenneth | Tom | Davide | Luis | Connor | Jake | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Week | Date | Kenneth | Tom | Davide | Luis | Connor | Jake | | Total |
| 2 | 2 | 25/01/2021 | 16.7% | 10.7% | 28.7% | 16.7% | 10.7% | 16.7% | | 100.0% |
| 3 | 3 | 01/02/2021 | 16.7% | 16.7% | 16.7% | 10.7% | 10.7% | 28.7% | | 100.0% |
| 4 | 4 | | | | | | | | | 0.0% |
| 5 | 5 | | | | | | | | | 0.0% |
| 6 | 6 | | | | | | | | | 0.0% |
| 7 | 7 | | | | | | | | | 0.0% |
| 8 | 8 | | | | | | | | | 0.0% |
| 9 | 9 | | | | | | | | | 0.0% |
| 10 | 10 | | | | | | | | | 0.0% |
| 11 | 11 | | | | | | | | | 0.0% |
| 12 | 12 | | | | | | | | | 0.0% |
| 13 | 13 | | | | | | | | | 0.0% |
| 14 | | | | | | | | | | |
| 15 | Contribution: | | 16.7% | 13.7% | 22.7% | 13.7% | 10.7% | 22.7% | | 16.7% |

Here is the way I worked out if anyone is interested

```
-WEEK 1-

Kenneth - +4, -2, -2, +4, -2, -2  = 16.7
Luis -    -2, +4, -2, +4, +4, -2  = 20.7
Davide -  +4, +4, -2, -2, -2, +4  = 24.7
Connor -  -2, -2, +4, -2, -2, -2  = 10.7
Jake -    -2, -2, +4, -2, +4, -2  = 16.7
Tom -     -2, -2, -2, -2, -2, +4  = 10.7
           K   D   C   L   J   T


-WEEK 2-

Kenneth - +4, -2, -2, -2, -2, +4  = 16.7
Luis -    -2, -2, -2, +4, -2, -2  = 10.7
Davide -  -2, +4, -2, -2, +4, -2  = 16.7
Connor -  -2, -2, +4, -2, -2, -2  = 10.7
Jake -    -2, +4, +4, +4, +4, -2  = 28.7
Tom -     +4, -2, -2, -2, -2, +4  = 16.7
           K   D   C   L   J   T
```

Again, these are now up for debate if anyone feels there's any issues at all

**Jokko** 02/08/2021
Ngl, Idek how that works haha

**Kennif_Broon** 02/08/2021
So if you name yourself and someone else, you get 4%, they get 4% and everyone else has to take -2% to compensate
each column with the letter at the bottom is the way each person voted for each week
and you start at 16.666666666667% to begin with
so if you get mentioned once in a week and metion yourself it just cancels out and you stay at 16.7%

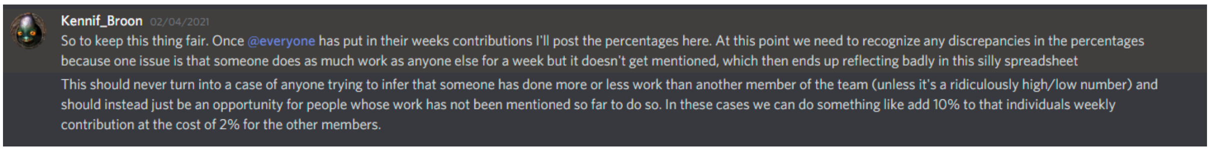
**Jokko** 02/08/2021
Ahh ok

**Kennif_Broon** 02/08/2021
Do you reckon it seems fair?

**Jokko** 02/08/2021
Yeah, I'd say so

*__Discord Chat Log__ – Public Group Messages on Contributions Channel (08/02/2021)*

### 2.3



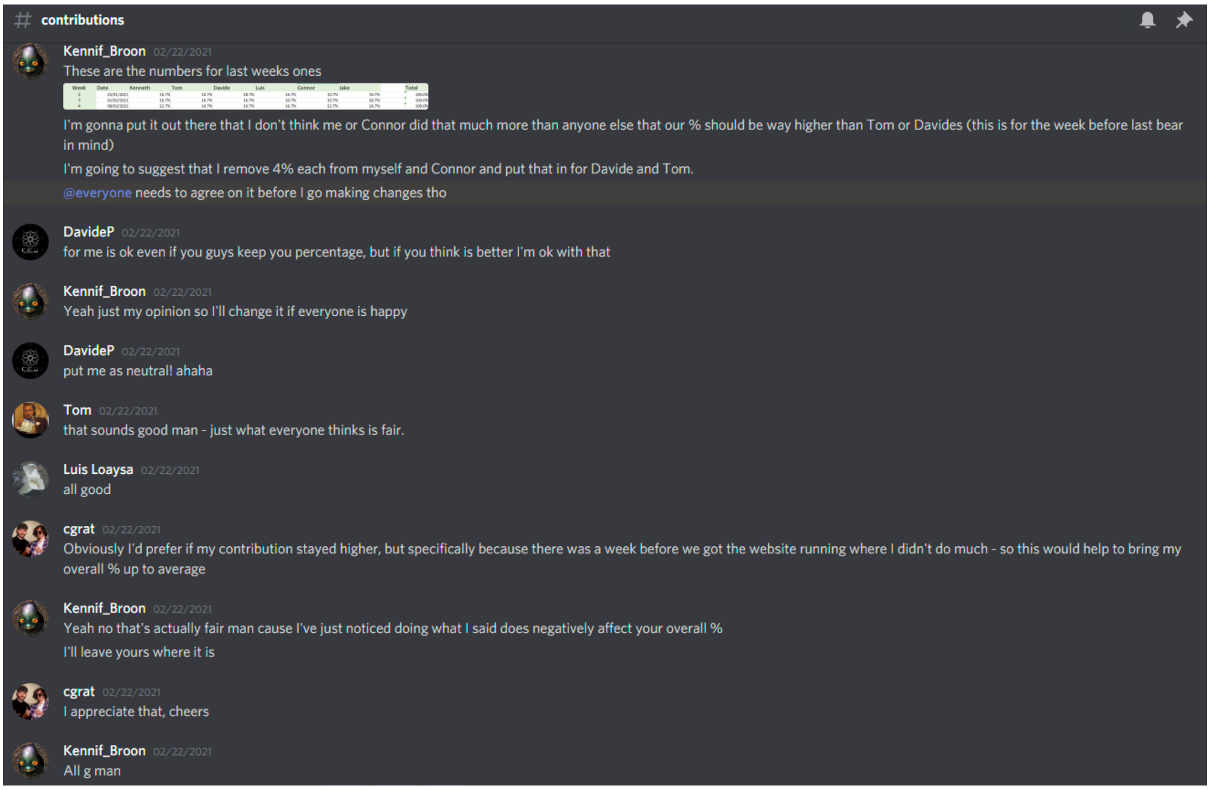
**Kennif_Broon** 02/04/2021

So to keep this thing fair. Once @everyone has put in their weeks contributions I'll post the percentages here. At this point we need to recognize any discrepancies in the percentages because one issue is that someone does as much work as anyone else for a week but it doesn't get mentioned, which then ends up reflecting badly in this silly spreadsheet

This should never turn into a case of anyone trying to infer that someone has done more or less work than another member of the team (unless it's a ridiculously high/low number) and should instead just be an opportunity for people whose work has not been mentioned so far to do so. In these cases we can do something like add 10% to that individuals weekly contribution at the cost of 2% for the other members.

***Discord Chat Log** – Public Group Messages on Contributions Channel (04/02/2021)*

### 2.4



# contributions

**Kennif_Broon** 02/22/2021

These are the numbers for last weeks ones

| Week | Date | Kenneth | Tom | Davide | Luis | Connor | Jake | | Total |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 25/01/2021 | 16.7% | 10.7% | [illegible] | [illegible] | 10.7% | 16.7% | | 100.0% |
| 3 | 01/02/2021 | 16.7% | 16.7% | 16.7% | 10.7% | 10.7% | 28.7% | | 100.0% |
| 4 | 08/02/2021 | 22.7% | 10.7% | 10.7% | 16.7% | 22.7% | 16.7% | | 100.0% |

I'm gonna put it out there that I don't think me or Connor did that much more than anyone else that our % should be way higher than Tom or Davides (this is for the week before last bear in mind)

I'm going to suggest that I remove 4% each from myself and Connor and put that in for Davide and Tom.

@everyone needs to agree on it before I go making changes tho

**DavideP** 02/22/2021

for me is ok even if you guys keep you percentage, but if you think is better I'm ok with that

**Kennif_Broon** 02/22/2021

Yeah just my opinion so I'll change it if everyone is happy

**DavideP** 02/22/2021

put me as neutral! ahaha

**Tom** 02/22/2021

that sounds good man - just what everyone thinks is fair.

**Luis Loaysa** 02/22/2021

all good

**cgrat** 02/22/2021

Obviously I'd prefer if my contribution stayed higher, but specifically because there was a week before we got the website running where I didn't do much - so this would help to bring my overall % up to average

**Kennif_Broon** 02/22/2021

Yeah no that's actually fair man cause I've just noticed doing what I said does negatively affect your overall %

I'll leave yours where it is

**cgrat** 02/22/2021

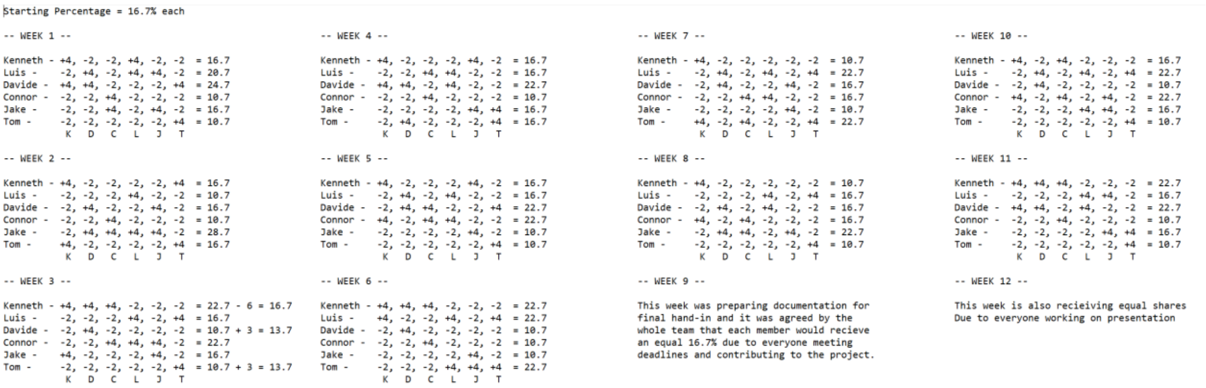
I appreciate that, cheers

**Kennif_Broon** 02/22/2021

All g man

***Discord Chat Log** – Public Group Messages on Contributions Channel (22/02/2021)*

### 2.5

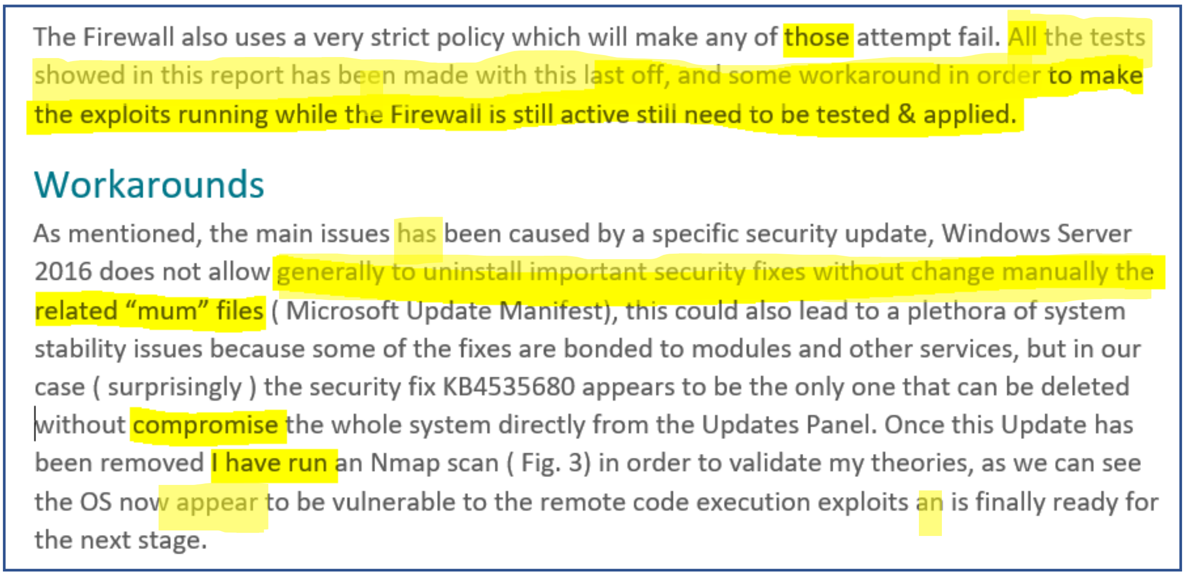


```
Starting Percentage = 16.7% each

-- WEEK 1 --

Kenneth - +4, -2, -2, +4, -2, -2  = 16.7
Luis -    -2, +4, -2, +4, +4, -2  = 20.7
Davide -  +4, +4, -2, -2, -2, +4  = 24.7
Connor -  -2, -2, +4, -2, -2, -2  = 10.7
Jake -    -2, -2, +4, -2, +4, -2  = 16.7
Tom -     -2, -2, -2, -2, -2, +4  = 10.7
           K   D   C   L   J   T

-- WEEK 2 --

Kenneth - +4, -2, -2, -2, -2, +4  = 16.7
Luis -    -2, -2, -2, +4, -2, -2  = 10.7
Davide -  -2, +4, -2, -2, +4, -2  = 16.7
Connor -  -2, -2, +4, -2, -2, -2  = 10.7
Jake -    -2, +4, +4, +4, +4, -2  = 28.7
Tom -     +4, -2, -2, -2, -2, +4  = 16.7
           K   D   C   L   J   T

-- WEEK 3 --

Kenneth - +4, +4, +4, -2, -2, -2  = 22.7 - 6 = 16.7
Luis -    -2, -2, -2, +4, -2, +4  = 16.7
Davide -  -2, +4, -2, -2, -2, -2  = 10.7 + 3 = 13.7
Connor -  -2, -2, +4, +4, +4, -2  = 22.7
Jake -    +4, -2, -2, -2, +4, -2  = 16.7
Tom -     -2, -2, -2, -2, -2, +4  = 10.7 + 3 = 13.7
           K   D   C   L   J   T

-- WEEK 4 --

Kenneth - +4, -2, -2, -2, +4, -2  = 16.7
Luis -    -2, -2, +4, +4, -2, -2  = 16.7
Davide -  +4, +4, -2, +4, -2, -2  = 22.7
Connor -  -2, -2, +4, -2, -2, -2  = 10.7
Jake -    -2, -2, -2, -2, +4, +4  = 16.7
Tom -     -2, +4, -2, -2, -2, +4  = 16.7
           K   D   C   L   J   T

-- WEEK 5 --

Kenneth - +4, -2, -2, -2, +4, -2  = 16.7
Luis -    -2, +4, -2, +4, -2, -2  = 16.7
Davide -  -2, +4, +4, -2, -2, +4  = 22.7
Connor -  +4, -2, +4, +4, -2, -2  = 22.7
Jake -    -2, -2, -2, -2, +4, -2  = 10.7
Tom -     -2, -2, -2, -2, -2, +4  = 10.7
           K   D   C   L   J   T

-- WEEK 6 --

Kenneth - +4, +4, +4, -2, -2, -2  = 22.7
Luis -    +4, -2, -2, +4, -2, +4  = 22.7
Davide -  -2, +4, -2, -2, -2, -2  = 10.7
Connor -  -2, -2, +4, -2, -2, -2  = 10.7
Jake -    -2, -2, -2, -2, +4, -2  = 10.7
Tom -     -2, -2, -2, +4, +4, +4  = 22.7
           K   D   C   L   J   T

-- WEEK 7 --

Kenneth - +4, -2, -2, -2, -2, -2  = 10.7
Luis -    -2, +4, -2, +4, -2, +4  = 22.7
Davide -  -2, +4, -2, -2, +4, -2  = 16.7
Connor -  -2, -2, +4, +4, -2, -2  = 16.7
Jake -    -2, -2, -2, -2, +4, -2  = 10.7
Tom -     +4, -2, +4, -2, -2, +4  = 22.7
           K   D   C   L   J   T

-- WEEK 8 --

Kenneth - +4, -2, -2, -2, -2, -2  = 10.7
Luis -    -2, -2, -2, +4, -2, +4  = 16.7
Davide -  -2, +4, -2, +4, -2, -2  = 16.7
Connor -  +4, -2, +4, -2, -2, -2  = 16.7
Jake -    -2, +4, +4, -2, +4, -2  = 22.7
Tom -     -2, -2, -2, -2, -2, +4  = 10.7
           K   D   C   L   J   T

-- WEEK 9 --

This week was preparing documentation for
final hand-in and it was agreed by the
whole team that each member would recieve
an equal 16.7% due to everyone meeting
deadlines and contributing to the project.

-- WEEK 10 --

Kenneth - +4, -2, +4, -2, -2, -2  = 16.7
Luis -    -2, +4, -2, +4, -2, +4  = 22.7
Davide -  -2, +4, -2, -2, -2, -2  = 10.7
Connor -  +4, -2, +4, -2, +4, -2  = 22.7
Jake -    -2, -2, -2, +4, +4, -2  = 16.7
Tom -     -2, -2, -2, -2, -2, +4  = 10.7
           K   D   C   L   J   T

-- WEEK 11 --

Kenneth - +4, +4, +4, -2, -2, -2  = 22.7
Luis -    -2, -2, -2, +4, +4, -2  = 16.7
Davide -  +4, +4, -2, +4, -2, -2  = 22.7
Connor -  -2, -2, +4, -2, -2, -2  = 10.7
Jake -    -2, -2, -2, -2, +4, +4  = 16.7
Tom -     -2, -2, -2, -2, -2, +4  = 10.7
           K   D   C   L   J   T

-- WEEK 12 --

This week is also recieiving equal shares
Due to everyone working on presentation
```

***Weekly Contribution Calculations** – Original Document & Spreadsheet @ https://github.com/Sly-Lamp/GRP14_PMIS*

## 3.0 - Drive for Results – Evidence

**Original Documents Available at -** *https://github.com/Sly-Lamp/GRP14_PMIS*

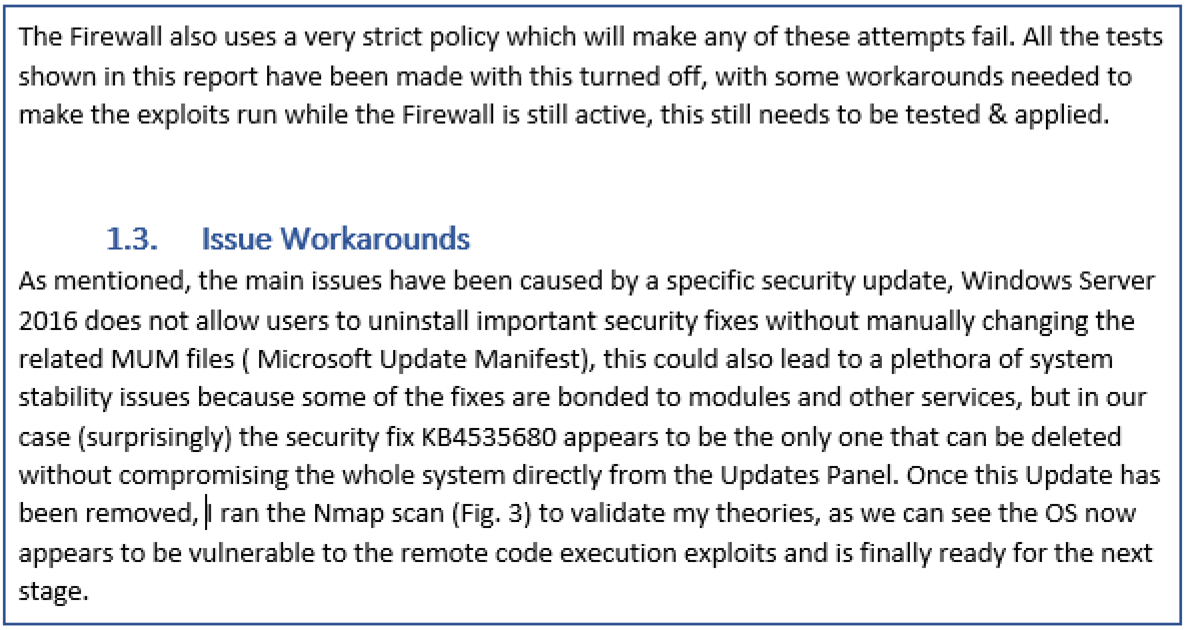


The Firewall also uses a very strict policy which will make any of those attempt fail. All the tests showed in this report has been made with this last off, and some workaround in order to make the exploits running while the Firewall is still active still need to be tested & applied.

### Workarounds

As mentioned, the main issues has been caused by a specific security update, Windows Server 2016 does not allow generally to uninstall important security fixes without change manually the related “mum” files ( Microsoft Update Manifest), this could also lead to a plethora of system stability issues because some of the fixes are bonded to modules and other services, but in our case ( surprisingly ) the security fix KB4535680 appears to be the only one that can be deleted without compromise the whole system directly from the Updates Panel. Once this Update has been removed I have run an Nmap scan ( Fig. 3) in order to validate my theories, as we can see the OS now appear to be vulnerable to the remote code execution exploits an is finally ready for the next stage.

*Figure 1 - Report Section Before Editing*



The Firewall also uses a very strict policy which will make any of these attempts fail. All the tests shown in this report have been made with this turned off, with some workarounds needed to make the exploits run while the Firewall is still active, this still needs to be tested & applied.

### 1.3. Issue Workarounds

As mentioned, the main issues have been caused by a specific security update, Windows Server 2016 does not allow users to uninstall important security fixes without manually changing the related MUM files ( Microsoft Update Manifest), this could also lead to a plethora of system stability issues because some of the fixes are bonded to modules and other services, but in our case (surprisingly) the security fix KB4535680 appears to be the only one that can be deleted without compromising the whole system directly from the Updates Panel. Once this Update has been removed, I ran the Nmap scan (Fig. 3) to validate my theories, as we can see the OS now appears to be vulnerable to the remote code execution exploits and is finally ready for the next stage.

*Figure 2 - Report Section after Editing*