1.4 I can appreciate (describe) the need for testing and project based development

Before finalising projects such as web pages you need to do testing, whether this be manual or automation depends on your experience and whether you have the resources.

**Automation testing** is when you write script or web code that allows the user to compare how the test ran once it had completed itself. The script/code would be programmed and then opened up each time the user wanted to test their project.

**Manual testing** is when the user would have to manually test every part of the web page and all the aspects about it to check if everything works.

You also have different types of testing to do, the integrity of a web page may include (but isn’t limited to) to security. White box testing would play a role in testing this. **White box** testing would have to be set up before, a lot like Automation testing, and require the user to maintain the program.

**Black box** can check the whole system for bugs and check whether it works or not.

Bugs and other vulnerabilities are not good for the user or the company behind the scenes as they can be expensive to fix and may require a server restart or something that might hinder business while you fix the bugs. You may also lose the trust in customers/clients who use the site because they find the site untrustworthy.

**V Model** testing would allow the developer(s) to test things alongside each other, the coding would be tested last after testing system design flaws and functions of the site, the whole integration of the software would be tested alongside the software being developed. Each step would be verified and validated.

Testing **Monolithic services** vs **micro services** is a lot harder because each code base becomes harder to maintain, the code must work alongside all each other in a monolithic whereas micro services are made to work separately and can be edited and improved independently. This makes it easier for the user and company as bugs can be fixed easier and avoided in the future.

The **Agile SCRUM** method can be a faster way of coding and can be used to spot bugs along the way, compared to the other methods like waterfall method.