

# Contemporary Software Development : Lab1

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## **AGILE MANIFESTO:**

The Agile Manifesto is a proclamation that outlines four key values and twelve principles that the authors believe should be adhered to when developing software. The manifesto was created by seventeen developers. *In the video, hitler states that he still believes in the manifesto even if his team failed in creating their software system following its principles.*

## **BUILD ENVIRONMENT:**

Since building means taking the source code and changing it into binary/executables, a build environment means that you are setting up specific instructions for your computer to build the code. *One of the senior developer tells hitler that the tests were removed from the build environment because they were failing.*

## **BURNDOWN CHART:**

A burndown chart is time-based which is a tool in software testing that will calculate the iterations that are made for a team of developers and weigh them over how long they take. It helps a team to evaluate how they are doing over the course of the project. *It is stated in the video that the team have created poor burndown charts among one of their many errors.*

## **CODE COVERAGE:**

Code Coverage allows you to prepare an overview of what code is being used. It is mostly a measuring tool. Normally it is highlighted in different sections showing you what lines are and aren't being used. Best to use operative statements when testing out code coverage. *Hitler aimed for his company to be using 90% of the code coverage with mock objects and that they run tests daily.*

## **CONTINUOUS INTEGRATION:**

The agile process focuses on producing clean/robust code at every iteration and this process can be slowed down by large amounts of testing near the end of the project. Continuous integration (CI) usually consists of producing/building updates to the system several times in a day depending on the size of the team/organization. CI can involve automatically running tests and this incremental approach ensures that code is constantly kept clean and that a 'big bang' integration of code is not necessary after long periods of development. *In the video, it was stated that the team was committed to using CI and that the team would test behavior, and not just state.*

### **INCREMENTAL:**

The incremental process of agile development means that you need to create the structure of the program step by step. This approach is based on producing software in cycles which is then released to the customer so that they can have more control and communication over the project. The quickness of incremental development also means that it is easier to implement decide on new requirements.

### **ITERATION:**

Usually takes 2-3 weeks. The iterative model is based on the cycles of passes through the stages of development. This counts for having an initial plan, going through planning, requirements, analysis and design and implementation. The iteration is then evaluated to be considered for deployment or to go back through testing methods and evaluation. *In the video, the team discuss are currently in their sixth iteration and discuss how after the third iteration, testing was stopped.*

### **MOCK OBJECTS:**

Mock objects are based on a simulated object that are known to resemble the programs behavior and specific sections of the code. Mock objects are important and are easily transportable in code. Their whole functionality is that you can use and reuse them in multiple sections of your code's functionality. An example of a mock object would be a fuzzer or resemble a crash test dummy. *Hitler insults team about being lazy and asks them where are his mock objects.*

### **STAND UPS:**

Stand-ups usually take place on a daily basis and assess team commitment and coordination. It ensures that the entire team is up-to-date and synchronized on what stories must be completed and what, if any, obstacles are in the team's way of completing their goal. *In this video, it was a complaint by the führer that although there were daily stand-ups among the development team, no member mentioned that since the third iteration testing was stopped. Hitler argues why doing stand up meetings were even good for in the first place.*

### **UNIT-TESTING:**

A level of software testing where individual units/components of a software system are tested., Different tests are written for individual methods for example and the tests help to highlight the state and behaviour of different parts of the application system with different inputs/interactions. Unit testing is usually done in multiple frameworks but it is popular to use JUnit and TestNG for java. The internal structure is based on a few outcomes. 1: Run, which means how many have succeeded, 2: Errors which means what code lines do not work or sections of your code has failed. And 3: Failures mean that the system-wide has failed. *The führer tells is annoyed that the code testing was stopped after iteration 3 and that it was not mentioned in any of the stand-up meetings. In the video, it was outlined that the development team dropped testing as automated unit testing had been more challenging than they anticipated.*

### **USE-CASES:**

A use case outlines how the customer or real-world actor interacts with the software system. A use case will outline what steps a user goes through to complete their goal on the system and also outline all the things that can cause errors/to go wrong when a user is trying to achieve that goal. A use case will usually contain ‘actors’ for example a target customer. *In this video, in the beginning, it is noted that the user has many alternate paths through the use cases.*

### **USER-STORIES:**

A short note was written with no development jargon written usually on a sticky note or note card. The aim of user stories is to make it clear about the user requirements that must be met by the development team and helps the development team estimate how long it will take to implement this feature. *The video starts off with the entire software team meeting up to discuss their user stories to check with features to implement next.*

### **STORY-POINT:**

Story point is an abstract measure based on the efforts required before starting a project. It measures the requirement of a user story. Which has a count, a difficulty level that is also based on how long it should take to finish the user story. *In the video the führer talks about not giving one point to the senior developers until all tests run every hour.*

### **TEST DRIVEN DEVELOPMENT:**

Test driven development that consists of three main phases. The developer writes a test case, this will initially fail. This outlines a desired new or improved function to be the produced and then the minimum amount of code is written to meet this target and to pass the test case. The code is

then refactored to the desired standard. *In the video, Hitler states that he is committed to test-driven development and believed his team was too.*

### **VELOCITY:**

Velocity is used to measure the efficiency of the team during the sprint. A useful tool for planning as a team knows that if a certain task took a certain amount of time previously then future-task times that are similar in size can be easier to estimate. *In the video, the führer states 'What's our velocity like now?' annoyed that the lack of testing hindered progress as now the development team faces a large obstacle.*

### **WATERFALL:**

The waterfall process in software testing consists of 5 steps that are done throughout the entire process of the software makers. The process will start with analysis, then go to design, to coding and testing. This will then be going back to analysis again till satisfied. Which means it will go back to the maintenance part of coding. *Hitler is determined not to have to return to use the waterfall model.*