

Introduction to Programming



Module 2

MODULE OVERVIEW

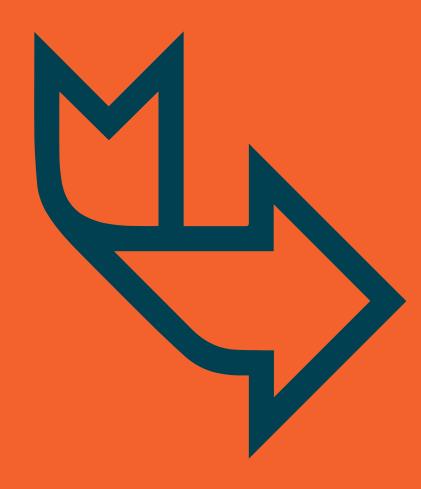
- What is a program?
- What is programming?
- Programmer activities
- How do programmers work?
- Agile and Scrum
- Essential programmer traits

What is a Program?



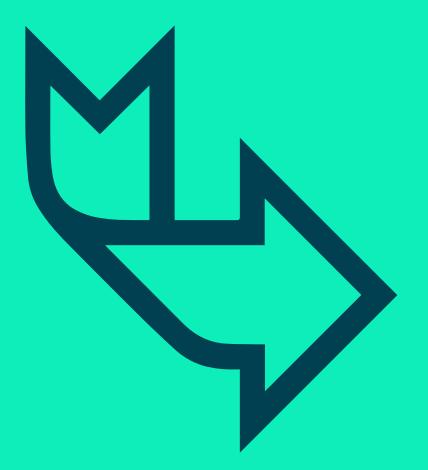
What is Programming?

- Computer programming is the act of telling a computer what to do
- We need to describe the series of steps required
- We write these steps using a programming language
- The language is then translated from this high-level code to the low level format the computer understands
- This results in a series of binary instructions which are executed by the computer



Activity: Make Toast





Activity: Programmer Tasks

In groups, brainstorm a list of all of the tasks you think are performed by a programmer.

Programmer Tasks

- Discover user requirements
- Research existing systems
- Modify existing systems
- Write computer software
- Test software
- Provide support and training
- Create operating manuals / documentation

How do programmers work?





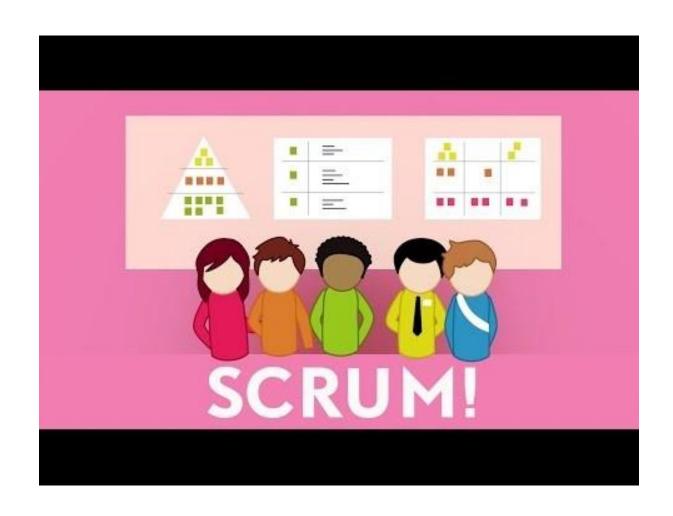




Agile

- Group of software development methodologies
- Aligns development with evolving customer requirements
- Based on iterative development
- Collaboration within cross-functional teams is key
- Encourages frequent inspection and adaptation
- Aims to enable rapid delivery of high-quality software
- The most widely used agile framework is Scrum

Scrum



Scrum Roles

Product Owner

The main project stakeholder responsible for giving direction to the team and liaising with the customer and other stakeholders to gather requirements.

Team Member

Each team member takes joint responsibility in completing the work they have collectively committed to complete during each sprint.

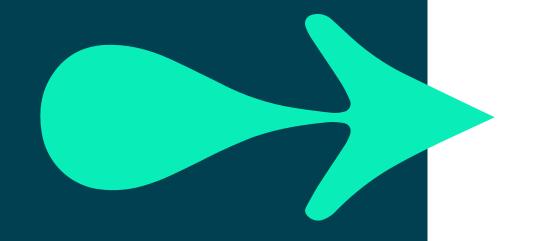
Scrum Master

The team facilitator or coach who's main focus is on the project process and to aid in removing distractions that come from outside of the team.

Sometimes referred to as a servant leader.

SPRINT

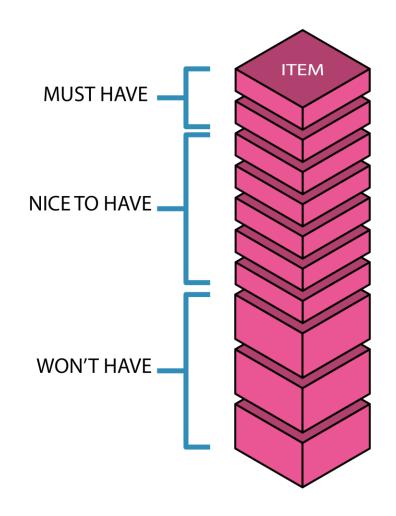
A **sprint** (or iteration) is the basic unit of development in Scrum. The sprint is a <u>timeboxed</u> effort; it is restricted to a specific duration. The duration is fixed in advance for each sprint and is normally between one week and one month, with **two weeks** being the most common.



Scrum Artifacts: Product Backlog

Product Backlog

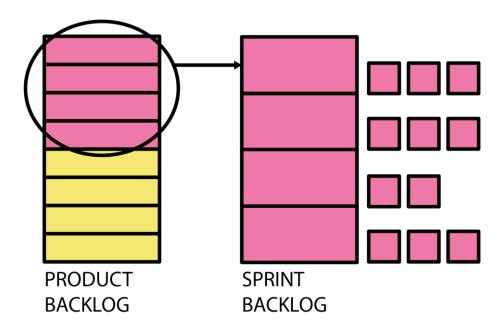
A to-do list of all the things that need to be done within the project. These items can have a technical nature or can be user-centric e.g. in the form of user stories.



Scrum Artifacts: Sprint Backlog

Sprint Backlog

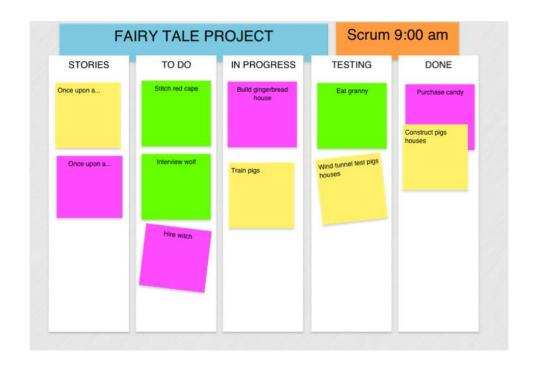
A list of tasks identified by the Scrum team about which functionality will be completed during the next sprint and the work needed to deliver that functionality into a done state.



Scrum Artifacts: Scrum Board

Scrum Board

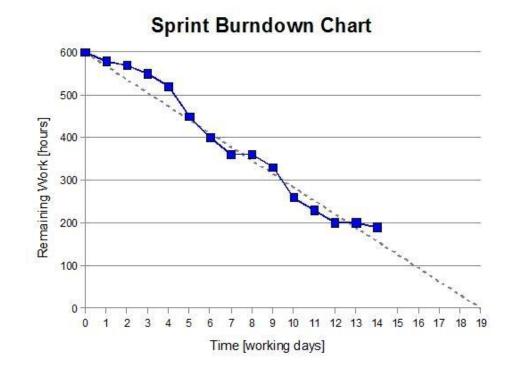
A visual display of the progress of the team during a sprint. It presents a snapshot of the current sprint backlog allowing everyone to see which tasks remain to be started, which are in progress and which are done.



Scrum Artifacts: Burndown Chart

Burndown Chart

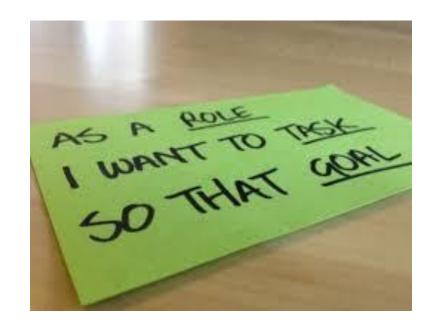
A graphical representation of work left to do versus time. It shows how quickly you are burning through your customer's user stories. It helps to predict when all the work will be completed.



Scrum Artifacts: User Stories

User Story

A short, simple description of a software feature from an end-user perspective. The story describes the type of user, what they want and why.



Scrum Meetings / Rituals



Sprint Planning

What is achievable within this sprint. What work does the scrum team commit to.



Daily Stand-up

What did you do yesterday?

What are you going to do today?

What impedes you?



Sprint Review

Deliver results, discuss or showcase completed work and receive feedback.



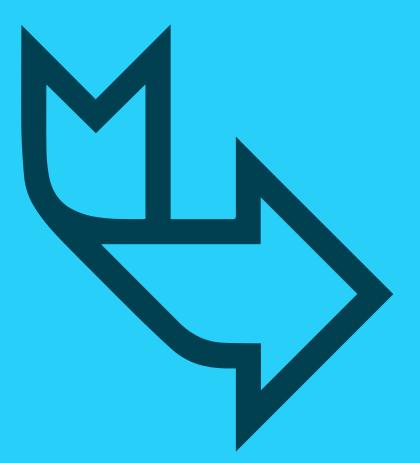
Sprint Retrospective

Reflect on sprint and look for team improvements.

What went well / badly/ needs improvement?

Pair Programming





Activity: Programmer Traits

As a group, discuss the skills and personality traits you feel are essential for a software engineer to succeed

Any questions?