

# Introduction to Software Engineering

## Day 5 - Session 1

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# Agile Development

**Iterative and incremental approach to software development**

Key principle

BIR-DIF

**Build It Right - Deploy it Faster!!**

# Change Management

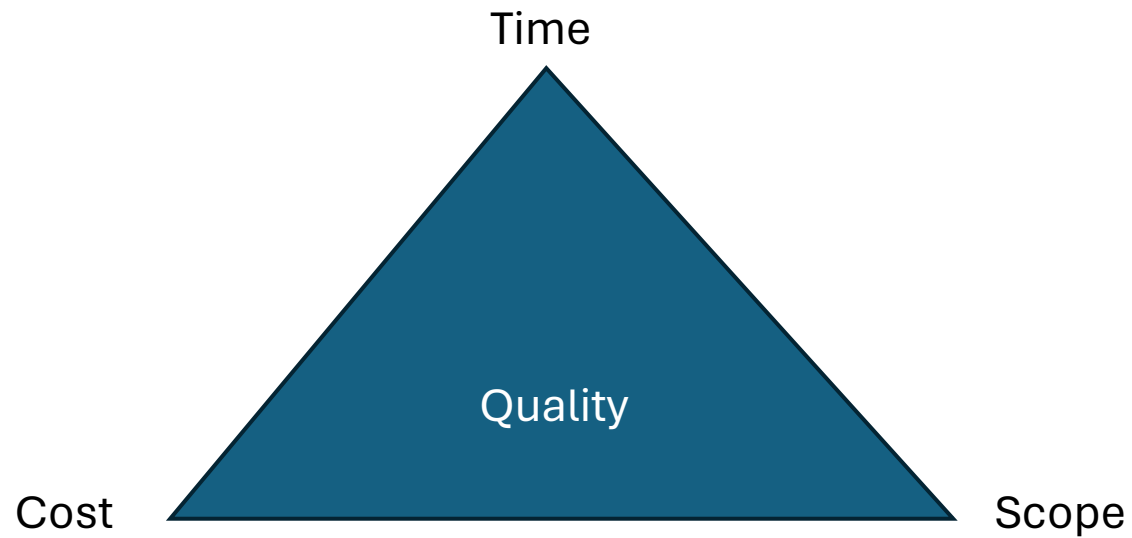
***Change is the only constant!!***

- Change management process allows handling change gracefully
- Quality can never be compromised



# Quality Triangle

**Balancing Scope, Time, and Cost**



# OOAD - Concepts



# OOAD-Applications

- Client-Server Systems
- E-Commerce Systems
- Office Automation Systems
- OODBMS
  - Gaming Applications
  - CAD Systems
- Real time systems – IoT applications

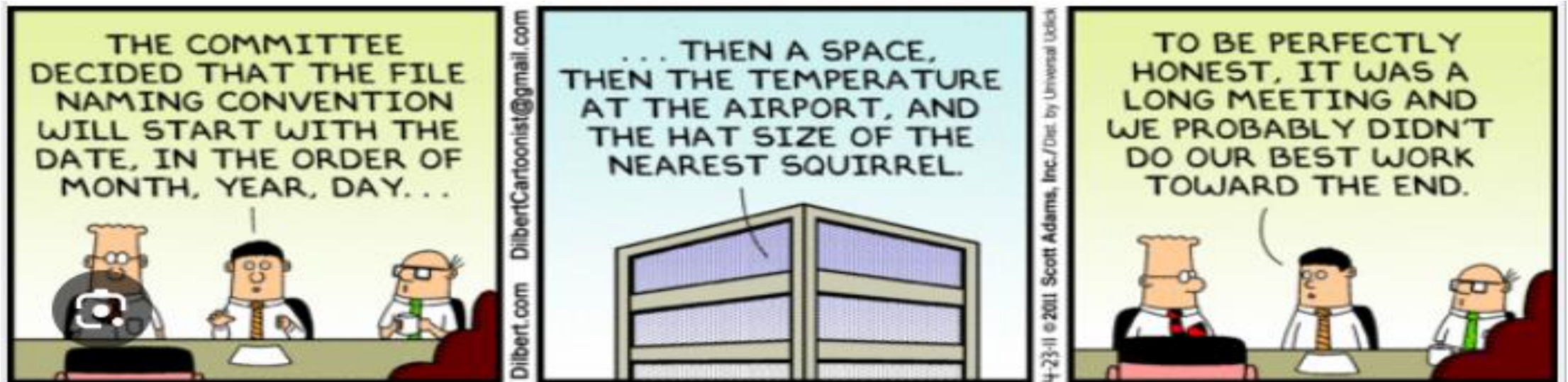
# And now the Coding Conventions !!

*As grammar is to languages, Coding conventions are to code*

Consistent

Readable

Maintainable



# Types of Coding Conventions

- Indentation
- Naming
  - Variable
  - Function
  - File Naming
- Formatting
- Commenting
- Consistency with conventions

**Straight from ChatGPT!!**

write a joke about python, java and c++ walking into a bar

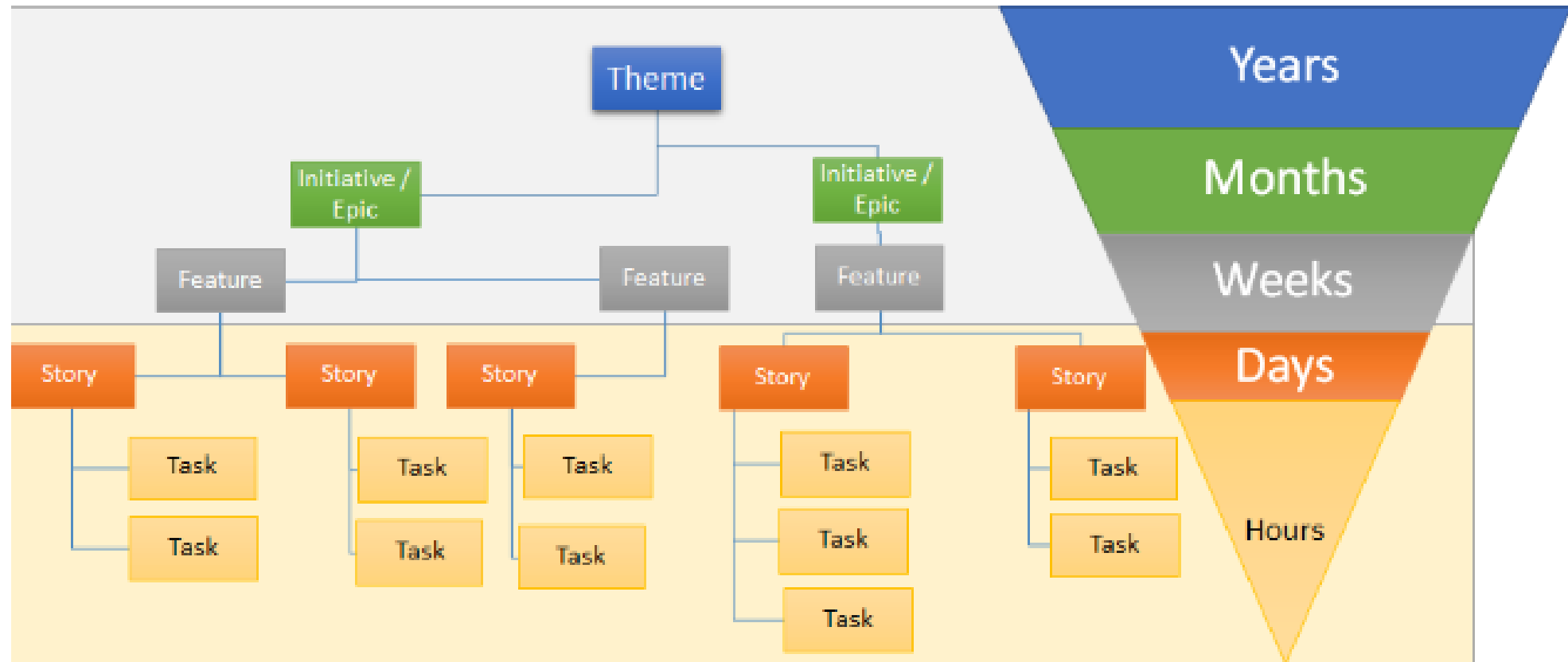
Python, Java, and C++ walk into a bar, and the bartender says "What is this, a coding convention?"



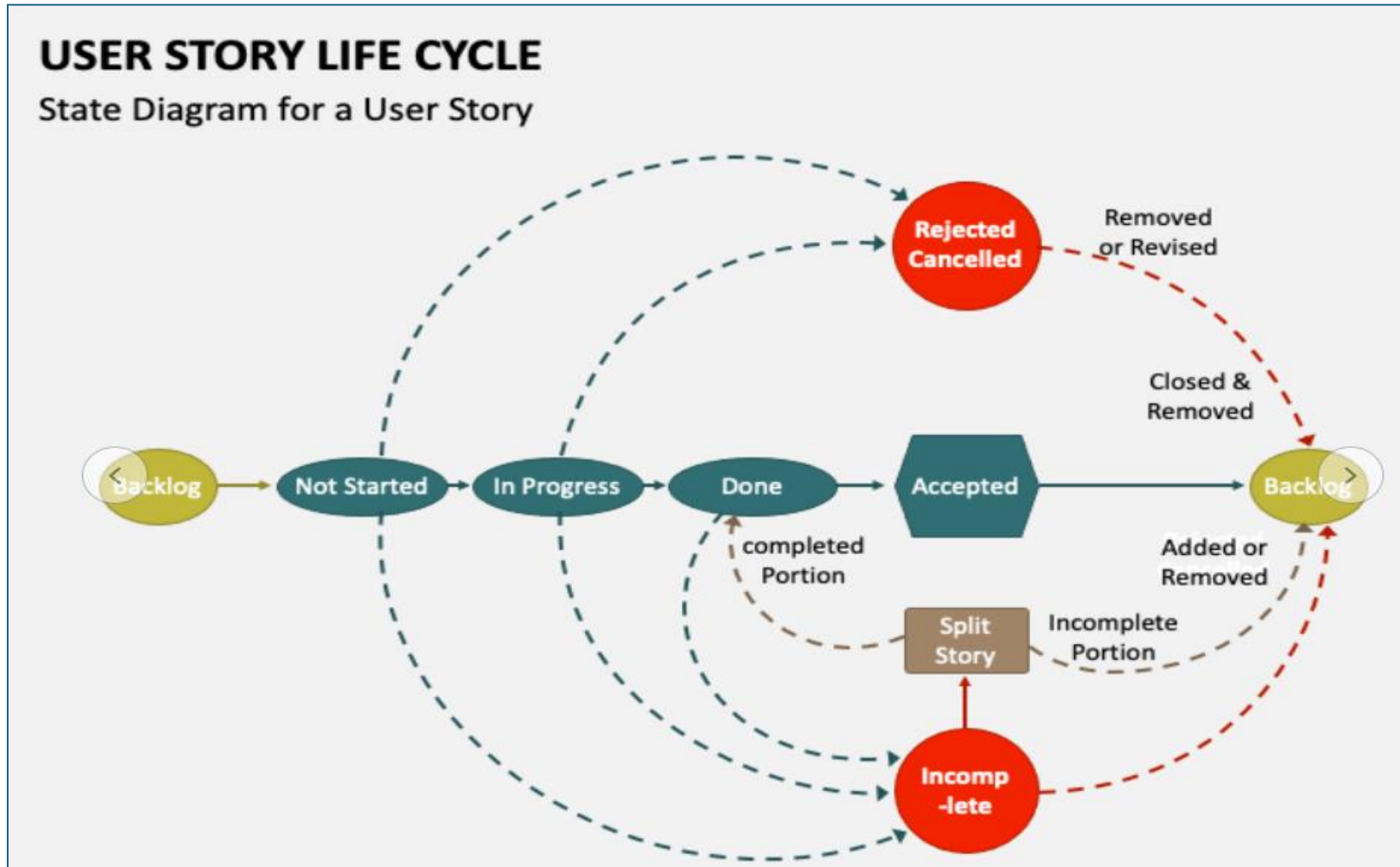
# Jira Terminologies

- Epic - Large initiatives or projects
- Story - User-centric features
- Task - Smallest units of work in Jira
- Subtask - Further break down of a task
- Issue-Key - Unique identifier for each issue
- Assignee - Person responsible for completing a task

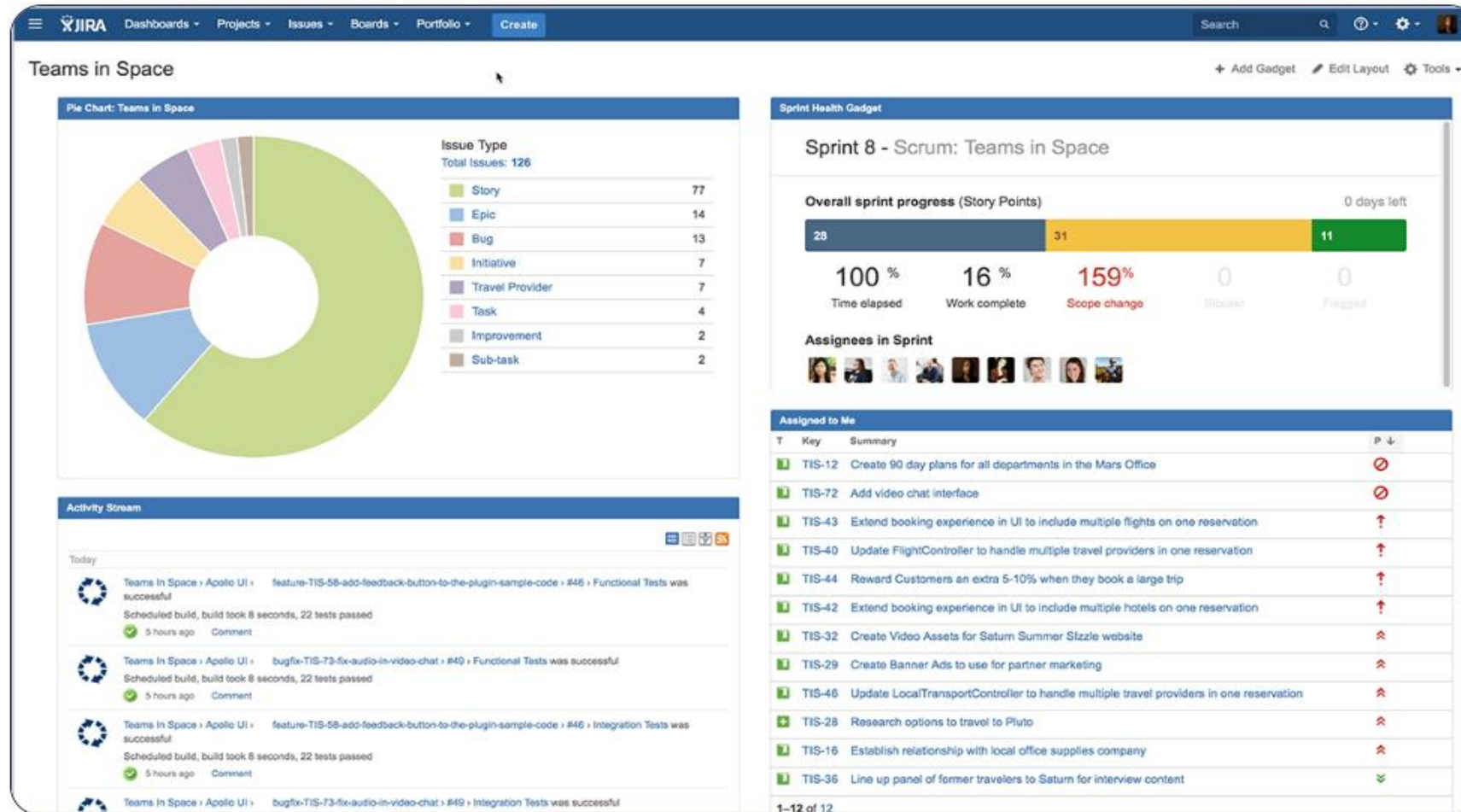
# Project Structure Breakdown



# User Story Lifecycle



# Jira Dashboard



# Jira Query Language - JQL

Tool to search issues or other information

The screenshot displays the Jira Search interface. A search bar at the top contains the JQL query `project = "Teams in the Space"`. To the right of the search bar is a blue **Search** button. Below the search bar, a table lists the search results. The table has columns for issue type, key, summary, assignee, priority, status, epic link, resolution, impacted customers, and reporter. The results are sorted by status, showing issues in 'TO DO', 'IN PROGRESS', and 'DONE' states.

Numbered callouts in the image:

- 1: Points to the search bar containing the JQL query.
- 2: Points to the **Search** button.

T	Key	Summary	Assignee	P	Status	Epic Link	Resolution	Impacted Customers	Reporter
	TIHP-21	Spaceship tracker app updates	Unassigned	▼	TO DO		Unresolved	None	Master Engineer
	TIHP-17	Set up a custom issue type	Unassigned	▼	TO DO		Unresolved	None	Master Engineer
	TIHP-16	Landing on Mars	Unassigned	=	TO DO		Unresolved	None	Master Engineer
	TIHP-14	Request type isn't valid after issue type change	Unassigned	▼	TO DO		Fixed	None	Friendly Robot
	TIHP-10	Complete ignition tests	Unassigned	=	TO DO		Fixed	None	Master Engineer
	TIHP-9	Verify the landing site	Captain Joe	=	DONE		Done	None	Friendly Robot
	TIHP-8	Spaceship tracker app updates	Master Engineer	=	IN PROGRESS		Unresolved	None	Captain Joe
	TIHP-5	Space exploration	Master Engineer	⚡	DONE		Done	None	Friendly Robot
	TIHP-3	Send the pre-landing report to Earth	Master Engineer	▼	TO DO		Unresolved	None	Friendly Robot
	TIHP-1	Send the pre-landing report to Earth	Captain Joe	=	TO DO		Unresolved	None	Master Engineer

# JIRA API

## *Programmatic interface to interact with Jira data*

- REST APIs
- JSON formats
- CURL commands / REST calls in python / java code

api/2/issue [Expand all methods](#)

‣ <b>Create issue</b>	POST /rest/api/2/issue
‣ <b>Create issues</b>	POST /rest/api/2/issue/bulk
‣ <b>Get issue</b>	GET /rest/api/2/issue/{issueIdOrKey}
‣ <b>Delete issue</b>	DELETE /rest/api/2/issue/{issueIdOrKey}
‣ <b>Edit issue</b>	PUT /rest/api/2/issue/{issueIdOrKey}
‣ <b>Archive issue</b>	PUT /rest/api/2/issue/{issueIdOrKey}/archive
‣ <b>Assign</b>	PUT /rest/api/2/issue/{issueIdOrKey}/assignee

# Fun facts!!

Myth	Reality
While running behind schedule, add more people.	Adding more people at a later stage in adhoc manner reduces productivity
Outsourcing will allow me to relax while the org builds the product	Organisations who cannot control and manage internal projects, will struggle managing outsourced products
Once we write the program and get it to work, our jobs are done	Sooner you begin writing code, the longer it'll take you to get done
Process will slow down if voluminous documentation is created	Documentation helps in creating quality software and faster delivery
QA can be done if we have time	Without QA product run into unforeseen issues at runtime, resulting into sky rocketing costs

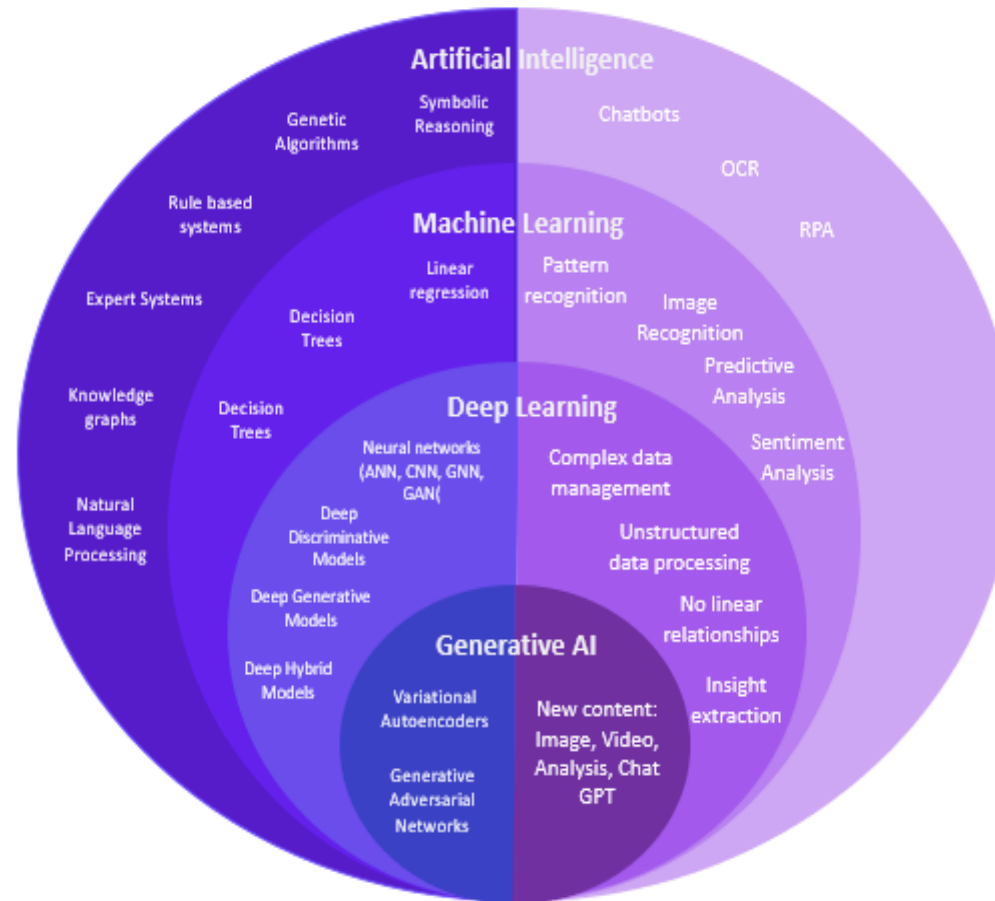
# Introduction to Software Engineering

## Day 5 - Session 2

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# Introduction to AI



# QA challenges AI Solutions

- Requirement Analysis - NLP
  - Summarizations
  - Impact Analysis
- UML Diagramming

# UML with ChatGPT

Mermaid.js - JavaScript based diagramming and charting tool



# 'ikigai' - The Japanese Secret to a Long and Happy Life

*'iki' :: reason 'gai' :: live*

Reason to live

Long-term career planner



# Recap

- What are the 3 constraints impacting quality?
- Where can OOAD be implemented?
- What are coding conventions?
- Examples of coding conventions?
- What is JQL?
- What are Jira APIs?

***Thank-You!!***