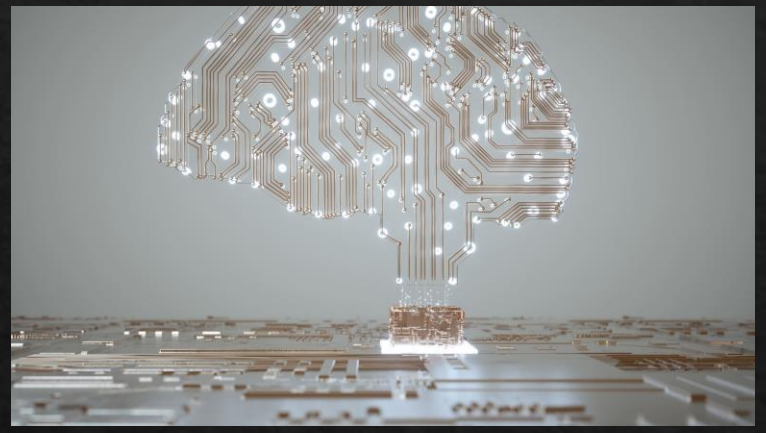


Artificial Intelligence Project 1

Lecture 2

Dr. Hari M Koduvely

Recap of Agile Process

- Agile is a time bound, iterative approach to software development
- Build software incrementally
- Three approaches to agile:
  - Scrum
  - Kanban
  - Lean Agile

Recap of Agile Process

Comparison of Scrum Vs Kanban Vs Lean Agile

	Scrum	Kanban	Lean Agile
Goal	Create User Centered Product	Create User Centered Product	Reduce Waste
Timeline	Sprint Driven	Continuous Planning	Continuous Planning
Estimation	Story points	No strict complexity measurements	No strict complexity measurements
Management	Self-organizing	Self-organizing	Top driven
Applied to	Developing New Solutions	Developing New Solutions	Existing Repeatable Processes

Scrum Agile Project Management

- Scrum is the most commonly used Agile methodology
- Has flexibility and adherence to changes
- Aim is to make the quality of the end product the best possible
- Three main players in scrum methodology:
  - Scrum Master
  - Product Owner / Product Manager/ Project Manager
  - Scrum Team

Scrum Agile Project Management

- Scrum Master:
  - Acts as a coach to the team
  - Facilitate the meetings and communications between the team and product manager
  - Responsible to make sure that the team is adhering to scrum principles
- Product Owner / Product Manager:
  - Has the vision and broad understanding of the product
  - Act as the communication channel between business folks and scrum team
- Project Manager: People management
- Scrum Team:
  - Comprised of all the other people in the team

Scrum Agile Project Management

Scrum team operates on the basis of 3 major artifacts:

- Product Backlog
  - Contains high level definition of requirements documented as User Stories
- Sprint Backlog
  - Contains requirements that must be completed during a Sprint documented as tasks
- Sprint Burndown Chart
  - Used for representing how many items were planned for a given day
  - Extend to which the planned work was completed

Scrum Agile Project Management

Four fundamental Scrum Events executed during a sprint

- Sprint Planning
  - Used for deciding the specific output that is possible in a given sprint
  - Assigning the tasks required to complete to achieve the sprint goal
- Daily Standup Meetings
  - Daily progress update
  - Short meeting of not more than 15 minutes
  - Conducted by the Scrum Master
  - Each team member in turn updates:
    1. What was done yesterday
    2. What is planned for today
    3. Are there any blocks

Scrum Agile Project Management

Four fundamental Scrum Events executed during a sprint

- Sprint Review
  - Held at the end of every sprint with Product Owner and Business Folks
  - Object is to review the progress made during sprint towards the deliverable goal
- Sprint Retrospective
  - Meeting held by the sprint team and scrum master
  - Each member carry out an introspection of:
  1. What went well
  2. What did not go as planned
  3. How efficiency can be improved in the coming sprints

Demo of Agile Tools

- Git
- JIRA

Software Version Control with Git

Git is a mature, actively maintained open source project

Originally developed in 2005 by Linus Torvalds (creator of Linux OS)

Git has a distributed architecture (hence DVCS)

High Performance:

- Committing new changes, branching, merging and comparing past versions are all optimized for performance

Security:

- Git has been designed with the integrity of managed source code as a top priority.
- All objects are secured with SHA cryptography

Online resource – Learn Git in 3 Hours (Video)

Software Version Control with Git

Git is a mature, actively maintained open source project

Originally developed in 2005 by Linus Torvalds (creator of Linux OS)

Git has a distributed architecture (hence DVCS)

Flexibility:

- Flexibility w.r.t different workflows, size of the project etc.
- Treats Branching and Tagging as first-class citizens

Software Version Control with Git

- Git is an open-source, version control tool created in 2005
- GitHub is a company founded in 2008 that makes tools which integrate with git
- You do not need GitHub to use git, but you cannot use GitHub without using git.
- Alternatives to GitHub are GitLab and BitBucket

Software Version Control with Git

Create a local git repository

- mkdir Git_Test_Project
- cd Git_Test_Project/
- git init

Software Version Control with Git

Add a new file to the repository

- touch readme.md
- ls
- git status
- git add
- git status
- git commit –m "added readme.md to the repo"

Software Version Control with Git

Create a New Branch

Branches allow you to move back and forth between 'states' of a project.

Useful when creating new features in the project

- git checkout –b new_feature_branch
- git branch
- git commit –m "added readme.md to the repo"

Software Version Control with Git

Create a New Repository on a Remote Host

This is useful to collaborate with a team

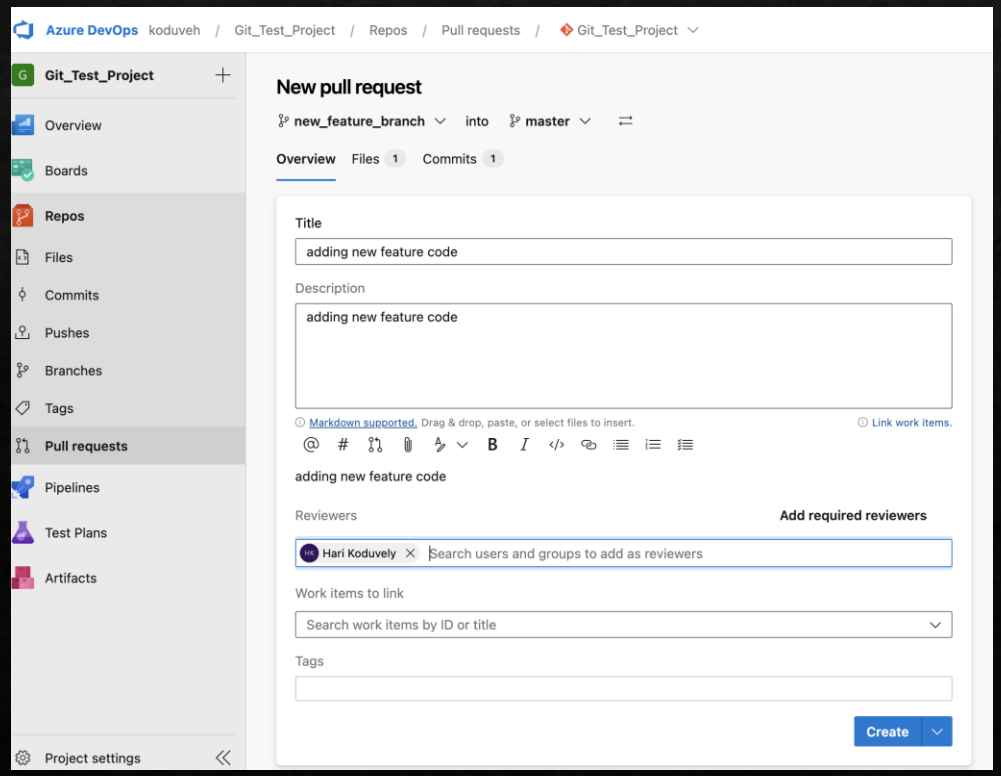
- Login to https://app.vsaex.visualstudio.com/ using the Outlook credentials
- Create a new repository Test_Project_F24
- Click on User Settings => Personal Access Tokens
- Add a new token
- git remote add origin https://{username}@dev.azure.com/{username}/Test_Project_F24/_git/Test_Project_F24

  git push -u origin –all
- To push a new branch git push origin my-new-branch

Software Version Control with Git

Create a Pull Request (PR)

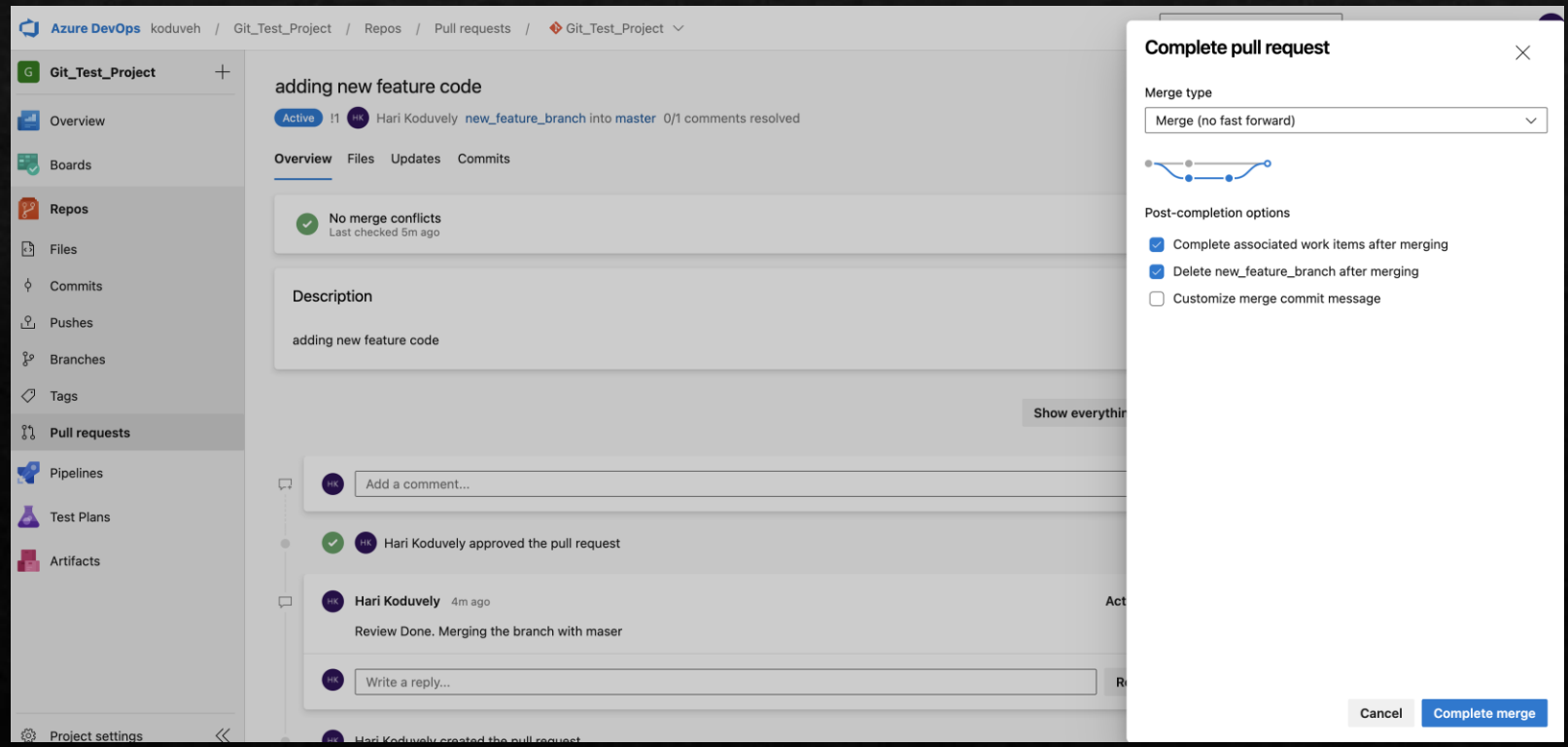
Pull Request is used for reviewing the code before merging with the main branch



Software Version Control with Git

Merge a Branch with Master

After PR is approved, branch can be merged with the main branch



Software Version Control with Git

Pull from Remote repo to make local branch up to date

- **git checkout master**
- **git pull**

In Class Assignment

Complete the Git Learning Assignment on Brightspace

Resources for Further Learning

- Learn Git in 3 Hours (Video)
- **Git Cheat Sheet** https://www.atlassian.com/git/tutorials/atlassian-git-cheatsheet

Chat Bot using LLMs

- Build a chat bot using LLama3.1 and Ollama
- Use your favourite Python framework