

# Assignment -23

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Batch-Data Engineering (Batch-1)

## Handwritten notes-

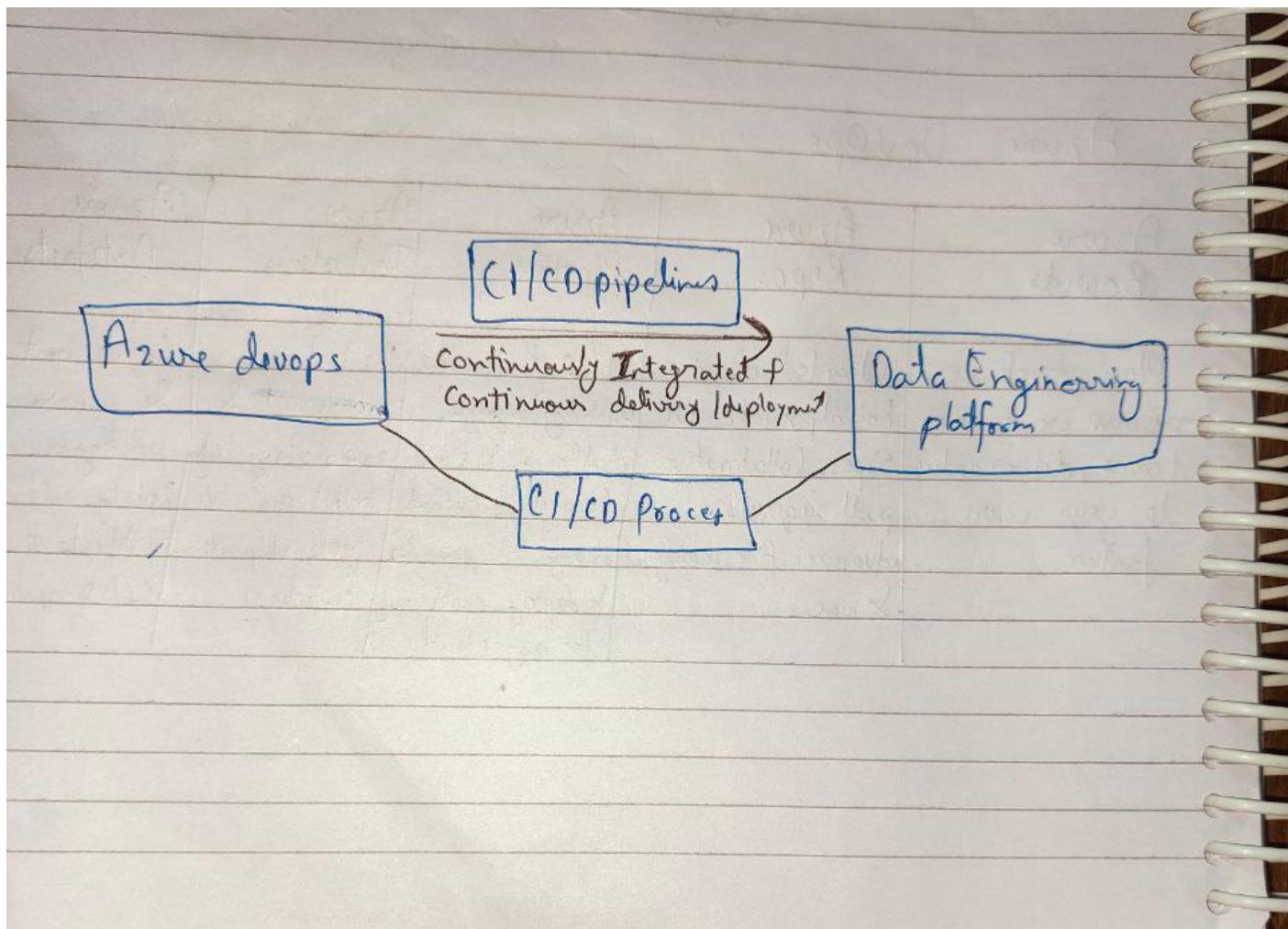
**Devops**

Devops is the union of people, process & products to enable continuous delivery of value to your end users.

```
graph TD; Create[Create] --> Plan[Plan]; Plan --> Release[Release]; Release --> Configure[Configure]; Configure --> Monitor[Monitor]; Monitor --> Package[Package]; Package --> Create; Dev[Dev] --- Create; Dev --- Plan; Ops[Ops] --- Release; Ops --- Configure; Ops --- Monitor;
```

**Azure DevOps**

Azure Boards	Azure Repos	Azure Pipelines	Azure Test plans	Azure Artifacts
Plan, track & discuss work across teams, deliver value to your users faster	Unlimited cloud-hosted private Git repos. Collaborative pull requests, advanced file management & KPIs.	CI/CD that works with any language, platform & cloud.	The test management & exploratory testing toolkit that lets you ship with confidence.	Create, host & share packages.



## Azure Boards

→ Connected from idea to release

→ Scrum ready

→ Project insights

## Azure Repos

Unlimited private Git repos hosting & support for TFVC  
that scales from a hobby project to the world's largest  
Git repositories

- Work with your Git Client
- Web hooks & API integration
- Semantic code search

## Azure Pipelines

Cloud-hosted pipelines for Linux, Windows & macOS with unlimited  
minutes for open source

- Any lang, any platform, any cloud
- Extensible
- Containers & Kubernetes
- Best-in-class for Open Source

## Azure Test Plans

Get end-to-end traceability. Run tests & log defects from your browser. Track & assess quality throughout your testing lifecycle.

- Capture rich data
- Test across web & desktop
- Get end-to-end traceability.

## Azure Artifacts

Create & share Maven, npm, & NuGet package feeds from public & private sources - fully integrated into CI/CD pipelines.

- Manage all package type
- Add package to any pipeline
- Share code efficiently

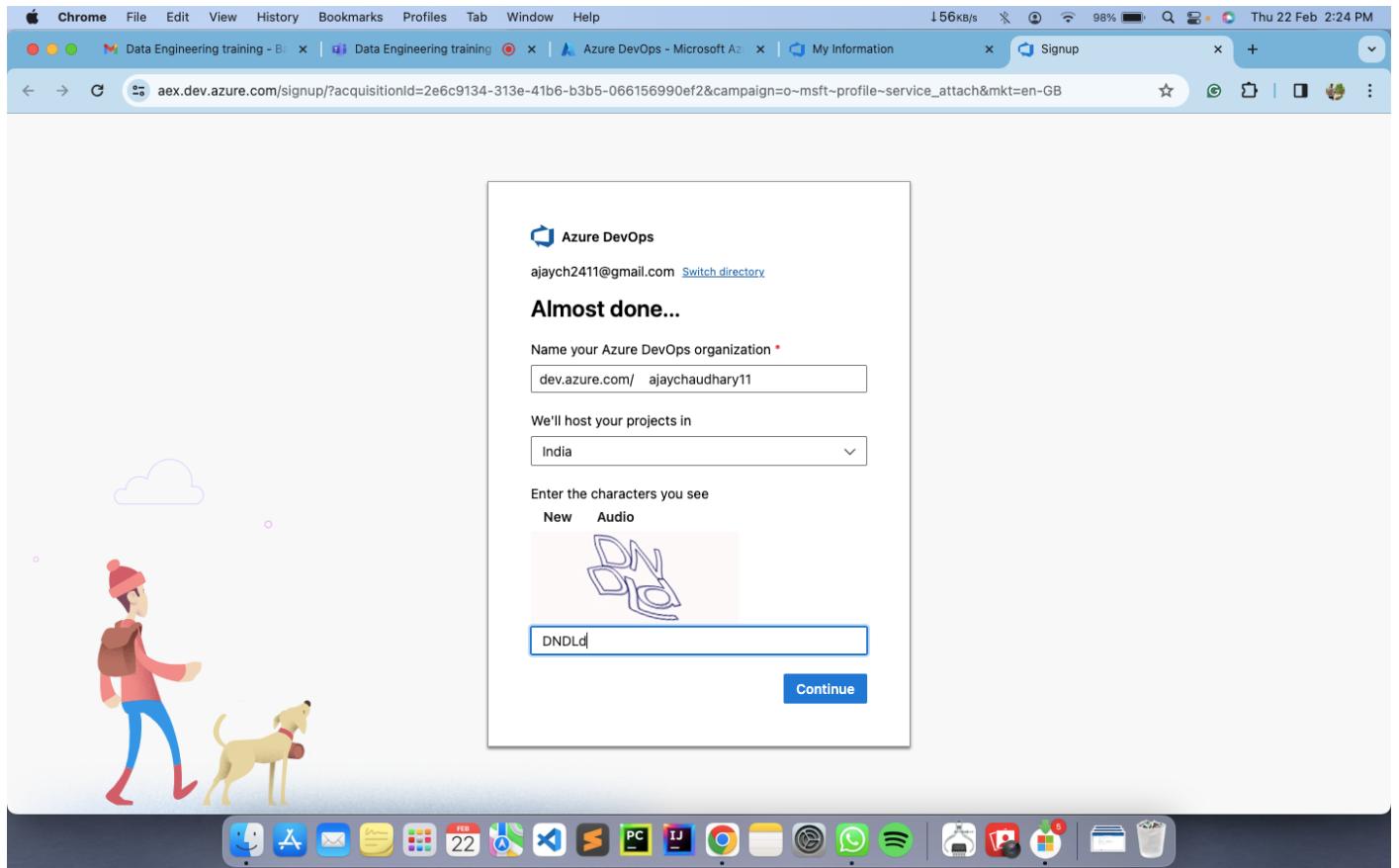
## Continuous Integration (CI)

- Improve software development quality & speed

## Continuous Deployment

- By combining continuous integration & infrastructure as code (IaC), you'll achieve identical deployments & the confidence to deploy to prod. at any time.

# Creating a Devops Organization-



## Creating a dummy project-

A screenshot of a Chrome browser window showing the Azure DevOps project creation interface. The URL in the address bar is [dev.azure.com/ajaychaudhary11/?acquisitionId=2e6c9134-313e-41b6-b3b5-066156990ef2&acquisition=true](https://dev.azure.com/ajaychaudhary11/?acquisitionId=2e6c9134-313e-41b6-b3b5-066156990ef2&acquisition=true). The page prompts the user to "Create a project to get started" with a form for "Project name" containing "devops\_practice". It offers two visibility options: "Public" (Anyone on the internet can view the project) and "Private" (Only people you give access to will be able to view this project). A note states "Public projects are disabled for your organization. You can turn on public visibility with [organization policies](#)". The left sidebar shows a "New organization" link and a "What's new" section with a "Sprint 234" update about workload identity federation. The Mac OS X dock at the bottom is visible.

The screenshot shows a Mac OS X desktop with a Chrome browser window open to the Azure DevOps project 'devops\_practice'. The browser's address bar shows the URL [dev.azure.com/ajaychaudhary11/devops\\_practice](https://dev.azure.com/ajaychaudhary11/devops_practice). The page displays the project's dashboard with various sections like Overview, Summary, Dashboards, Boards, Repos, Pipelines, Test Plans, and Artifacts. A central illustration features a person working at a desk with a dog. Below the illustration, a 'Welcome to the project!' message is displayed, followed by a list of service icons: Boards, Repos, Pipelines, Test Plans, and Artifacts. A 'Project Stats' section indicates 'No stats are available at this moment' and suggests 'Setup a service to see project activity.' On the right side, there is a 'Members' section showing one member named 'A'. The Mac OS X dock at the bottom contains icons for various applications.

## Installing the extension in Visual Studio-

The screenshot shows the Microsoft Visual Studio Code Marketplace interface. The search bar at the top has 'Extension: Azure Repos' typed into it. The main area displays the 'Azure Repos' extension by Microsoft, version v0.38.0 (Preview). The extension icon is a blue circle with a white code editor and signal icon. It has a rating of 4 stars from 2 reviews and is described as 'Remotely browse and edit any Azure Repos'. The 'DETAILS' tab is selected, providing information about the extension's purpose: 'The Azure Repos extension lets you quickly browse and search any remote Azure Repos repository directly from within Visual Studio Code.' It also explains why developers might need it: 'As developers, we often clone Git repos locally just to browse them or make small edits. We may want to look at the source code of a library we use, experiment with new tools, or just feel the desire to learn something new.' The 'Why do you need Azure Repos?' section highlights that cloning repos takes time and maintenance. The 'Getting started' section provides instructions on how to open an Azure Repos repository. To the right of the extension details, there are sections for 'Categories' (Other), 'Extension Resources' (Marketplace, Issues, Repository, License, Microsoft), and 'More Info' (Published: 2022-01-31, 21:33:32; Last released: 2023-12-11, 14:45:59; Identifier: ms-vscode.azure-repos). The Mac OS X dock at the bottom contains icons for various applications.

The screenshot shows the Azure DevOps interface for creating a new work item. The left sidebar lists various project management and data engineering tools. The main area is titled "Work Items" and shows a "NEW EPIC" card for a "Dataengineering project". The card includes fields for State (To Do), Area (devops\_practice), Reason (Added to backlog), Iteration (devops\_practice), and a Description ("Creating a data engineering project"). The "Planning" section shows a Priority of 4, Start Date of 22/02/2024 at 00:00, and Target Date of 28/02/2024 at 00:00. A "Discussion" box contains the comment "Working on it." with two green circular icons. The top navigation bar shows tabs for Data Engineering training, Azure DevOps, My Information, and a New Epic named "Dataengineering". The address bar indicates the URL is dev.azure.com/ajaychaudhary11/devops\_practice/\_workitems/create/Epic.

The screenshot shows the Azure DevOps interface for the 'devops\_practice' project. The left sidebar lists various project management sections like Boards, Work items, Backlogs, Sprints, Queries, Delivery Plans, Analytics views, Repos, Pipelines, Test Plans, Artifacts, and Project settings. The main area displays a list of work items under the 'Boards' tab. The top navigation bar includes tabs for Data Engineering training, Azure DevOps, My Information, and Work items - Boards. A search bar at the top right allows users to search for specific work items.

ID	Title	Assigned To	State	Area Path
1	Dataengineering project	Unassigned	To Do	devops_practice

Chrome File Edit View History Bookmarks Profiles Tab Window Help 0KB/s 64% Thu 22 Feb 3:53 PM

Data Engineering training - Data Engineering training Azure DevOps - Microsoft Az... My Information custom\_query - Boards

dev.azure.com/ajaychaudhary11/devops\_practice/\_queries/query-edit/c868040c-71c1-4018-a0b0-306e19ef03f6/

Azure DevOps ajaychaudhary11 / devops\_practice / Boards / Queries

Search

Queries > My Queries > custom\_query

Run query + New Save Column options

Results Editor Charts

Query type: Flat list of work items

1 of 2 Query across projects

Filters for top level work items

And/Or	Field *	Operator	Value
+	ID	In	@MyRecentActivity
+	Or	=	@me
Add new clause			

ID	Work Item T...	Title	Assigned To	State	Tags
1	Epic	Dataengineering project		To Do	
2	Task	Task-deb-project		Done	

Project settings

Recent Applications

Chrome File Edit View History Bookmarks Profiles Tab Window Help 0KB/s 63% Thu 22 Feb 3:55 PM

Data Engineering training - Data Engineering training Azure DevOps - Microsoft Az... My Information Work items - Boards

dev.azure.com/ajaychaudhary11/devops\_practice/\_workitems/recentlyupdated/

Azure DevOps ajaychaudhary11 / devops\_practice / Boards / Work items

Search

Work items

Recently updated | + New Work Item | Open in Queries | Column Options | Import Work Items | Recycle Bin

Filter by keyword

ID	Title	Assigned To	State	Area Path	Tags
1	Dataengineering project	Unassigned	To Do	devops_practice	
3	TEAM A	Unassigned	To Do	devops_practice	
4	TEAM B	Unassigned	To Do	devops_practice	

Project settings

Recent Applications

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dev.azure.com/ajaychaudhary11/devops\_practice/\_queries/query-edit/?\_a=query&tempQueryId=a4543c19-5a6b-447e-9ba2-3da994ff5d1f

Azure DevOps ajaychaudhary11 / devops\_practice / Boards / Queries

Search

Queries > Custom query

Run query New Save Column options

Results Editor Charts

Query type: Flat list of work items

1 of 1 Query across projects

Filters for top level work items

And/Or	Field *	Operator	Value
+	ID	In	@RecentProjectActivity
+	And	=	Done
Add new clause			

ID ↑	Title	Assigned To	State	Area Path
2	Task-deb-project		Done	devops_practice

Project settings

This screenshot shows the Azure DevOps Query Editor interface. The left sidebar lists project navigation options like Overview, Boards, Work items, Boards, Backlogs, Sprints, Queries, Delivery Plans, Analytics views, Repos, Pipelines, Test Plans, Artifacts, and Project settings. The main area is titled 'Custom query' and displays a table of work items. The table has columns for ID, Title, Assigned To, State, and Area Path. One item is listed: ID 2, Title 'Task-deb-project', Assigned To empty, State 'Done', and Area Path 'devops\_practice'. Below the table is a toolbar with various icons.

Chrome File Edit View History Bookmarks Profiles Tab Window Help

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dev.azure.com/ajaychaudhary11/devops\_practice/\_boards/board/t/devops\_practice%20Team/Issues

Azure DevOps ajaychaudhary11 / devops\_practice / Boards / Boards

Search

devops\_practice Team

Board Analytics View as backlog Issues

To Do Doing Done

+ New item

7 Create a solution for real-time data processing where Azure Data Factory is used to ingest streaming data, and Azure Databricks processes and analyzes the data in near-real-time using Spark streaming.

To Do

5 solve the pipeline bug

Doing

1/5

6 Create a solution for real-time data processing where Azure Data Factory is used to ingest streaming data, and Azure Databricks processes and analyzes the data in near-real-time using Spark streaming.

Done

This screenshot shows the Azure DevOps Boards interface. The left sidebar is identical to the previous screenshot. The main area is titled 'devops\_practice Team' and shows a Kanban board with three columns: To Do, Doing, and Done. In the 'To Do' column, there is a new item card with a description about creating a real-time data processing solution using Azure Data Factory and Databricks. In the 'Doing' column, there is a card for solving a pipeline bug. The 'Done' column contains a card for creating a real-time data processing solution, which is marked as completed. Below the board is a toolbar with various icons.

Chrome File Edit View History Bookmarks Profiles Tab Window Help

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Data Engineering trainin... Data Engineering tra... Azure DevOps - Micros... My Information Work items - Boards Overview dashboard...

dev.azure.com/ajaychaudhary11/devops\_practice/\_dashboards/dashboard/6849c541-a352-45ea-b59a-8ad2d6f67193

Azure DevOps ajaychaudhary11 / devops\_practice / Overview / Dashboards

devops\_practice Team - Overview

Overview Summary Dashboards Wiki Boards Repos Pipelines Test Plans Artifacts

This dashboard doesn't have any widgets yet!

Add one or more widgets to gain visibility into your team's progress.

Add a widget

Items Members (1)

All Items

devops\_practice Team Boards

devops\_practice Team Backlogs

Sprint 1 Sprints

Overview Dashboards

Project settings