

# Azure DevOps Interview Questions & Answers



**By Ankur Mistry**

Author, Speaker and Coach

 **DotNetTricks**

# Azure DevOps Interview Questions & Answers

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## Release History

- Initial Release 1.0.0 - 24<sup>th</sup> May 2019
- Second Release 1.0.1 - 1<sup>st</sup> Jul 2019



# About Dot Net Tricks

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The company which is currently registered by a name of Dot Net Tricks Innovation Pvt. Ltd. came into the shape in 2015. Dot Net Tricks website has an average footfall on the tune of 300k+ per month. The site has become a cornerstone when it comes to getting skilled-up on .NET technologies and we want to gain the same level of trust in other technologies. This is what we are striving for.

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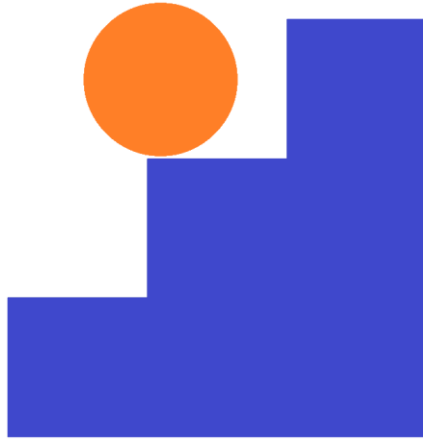
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# Dedication

I would like to say many thanks to my mother who first took me to the book library, she believes reading is important because if you can read, you can learn anything about everything and everything about anything.

I would like to say big thanks to my father, for raising me to believe that anything is possible.

I will be forever thankful to Pinky, the left side of the brain who is responsible for Analytical and logical thinking.

To my younger sister, Archana without her moral support this story might still be unfinished.

For all those who encouraged me to fly towards my dreams: my office friends, colleagues and managers and special thanks to Harshit, Rahul, Tarun, Aniruddh, Alpesh, Bhavin, Bala, Darshana and Anil with whom we discussed DevOps and learn a lot.

To cutie pie, Jesmin.

To my wonderful readers, may you find this book helpful?

**“We rise by lifting others.”**



***With lots of love.***

***-Ankur Mistry***

# Introduction

## What Where Author Qualification to Write This Book

Ankur Mistry is Agile Coach, Certified Scrum Product Owner, Certified Scrum Master and awarded as MVP by C# Corner for his exceptional contribution in Microsoft Azure technologies for the year 2016, 2017 and 2018. He has more than 14 years of experience on Microsoft technologies such as ASP.NET, MVC, Azure, Azure DevOps, SQL server etc. and other technologies such as HTML, CSS, jQuery etc.

He is also a blogger and author of articles on various technologies. He is also a speaker and delivered talk on various technologies like ASP.NET, Web API, MVC, Azure, Azure DevOps, CI/CD etc. in the public events.

## What This Book Is

Azure DevOps, the evolution of Microsoft Team Foundation Server, is excellent application lifecycle management tool for plan project with Agile tools and templates, manage and run test plans, Version control source code and manage the branches, deploy the solution across all platform using Azure Pipelines, by implementing Continuous Integration and Continuous Deployment.

Azure DevOps Interview Questions & Answers is the great reference materials for all your queries regarding Azure DevOps and application lifecycle management.

## What You'll Learn

This book is for the techy, Freshers and Experienced Deployment Engineers who are looking for a change or want to make a bright future in Azure DevOps. This book covers the interview questions on the following topics:

- Introducing DevOps
- Azure DevOps
- Azure Boards
- Azure Repos
- Azure Pipelines
- Azure Test plans
- Azure Artifacts
- Extensions & Marketplace

**Our best wishes always with you for your learning and growth!**

# About the Author

## Ankur Mistry - An Author, Speaker, and Coach



He has over 14 years of experience in liaising effectively between clients and different team members have been the hallmark. His technical prowess and capability of exploring new frontiers of technology & imparting them to his aspiring team members are his trademark.

He is Agile Coach, ICP-ACC, CSPO®, CSP-SM™, CSP®, CSM®. He is graduated from South Gujarat University Gujarat-India, working as a Certified Scrum Master and Project Manager with a demonstrated history of working in the information technology and services industry.

Skilled in C#, ASP.NET, SQL, ASP.NET MVC, Requirements Analysis, Agile Scrum, DevOps, and Software Project Management, Strong program and project management professional.

His execution is priceless and bringing forth his personal approach will help you realize your dreams, goals, and aspirations into reality.

He hopes that this e-book helps you to crack interview of Azure DevOps. This is the first edition of this book but not last. Please provide your feedback that help us to improve this book quality.



# How to Contact Us

Although the author of this book has tried to make this book as accurate as it possible but if there is something strikes you as odd, or you find an error in the book please drop a line via e-mail.

The e-mail addresses are listed as follows:

- [mentor@dotnettricks.com](mailto:mentor@dotnettricks.com)
- [info@dotnettricks.com](mailto:info@dotnettricks.com)

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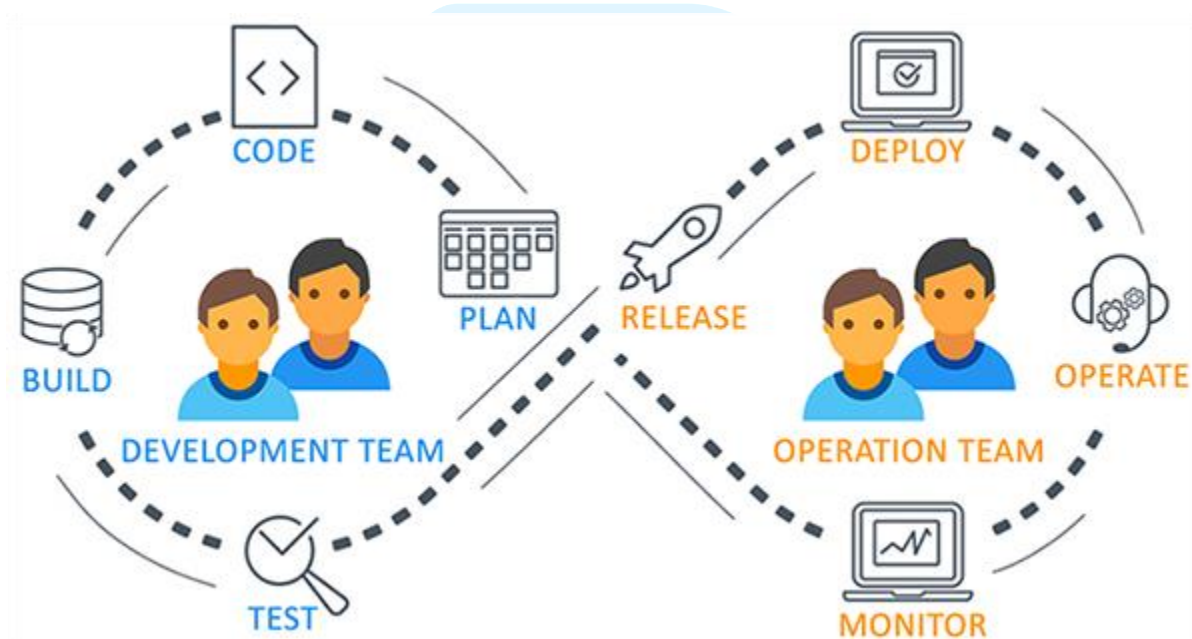
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# 1

## Introducing DevOps

### Q1. What is DevOps?

**Ans.** DevOps is Development and Operation's Collaboration, it's a Union of 3Ps - Process, People and Product (working Product) that enable continuous integration and continuous delivery of value to our end users. DevOps accelerate the process to deliver applications and software services at high speed and high velocity. So that organization can learn and adopt the market at its earliest. Also, it minimizing the risk factor by continuously delivering and getting end users and stakeholders feedback at the early stages.

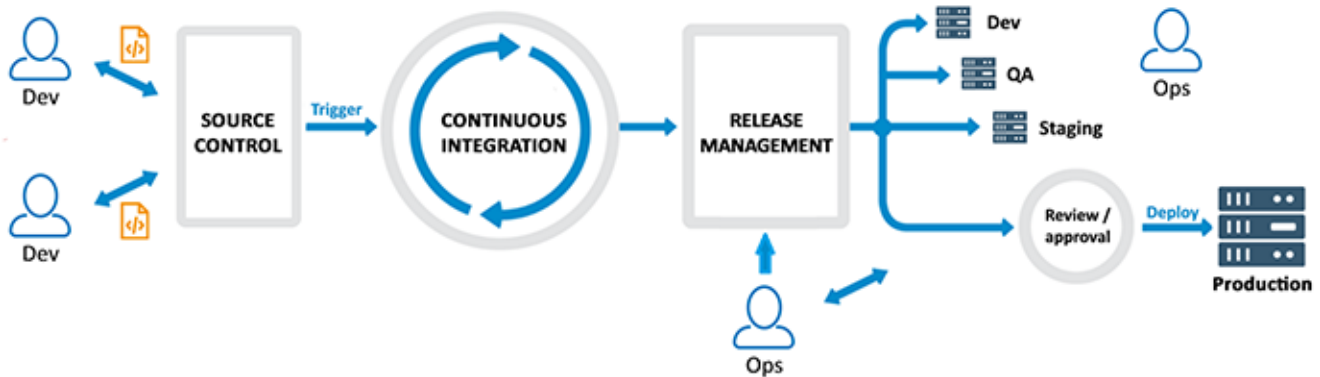


### Q2. What is the need for DevOps?

**Ans.** In Traditional software development, after completing the development part, the code deployment time was huge. And many times, we heard the common fights between the Development Team and Operations Team or deployment team that it works fine on our system, it's the sever causing problem and operation team defences it's not your server it's your code, Right? Well, DevOps solves the Traditional Dev and Ops fights by breaking the wall of confusion.

### Q3. How DevOps Works?

**Ans.** DevOps is the practice of operations and development engineers that work together in the entire project lifecycle, from design and development process to production releases and support.



Starting from design and development to testing automation and from continuous integration to continuous delivery, the team works together to achieve the desired goal. People having both development and operations skill sets working together and use various tools for CI-CD and Monitoring to respond quickly to customers need and fix issues and bugs.

### Q4. What are the benefits of DevOps?

**Ans.** The main benefits of implementing DevOps are:

- DevOps Deploy code faster in the market through Continuous Integration and Continuous Delivery.
- Customer Satisfaction.
- More engaged and Collaborative Development and Operation teams.
- Faster Operational Support.
- Strong Infrastructure Performance and IT performance.
- Less failures and continuous improvement.
- Transparency between the team.
- Constant Monitoring and better adaption.
- Increase efficiency

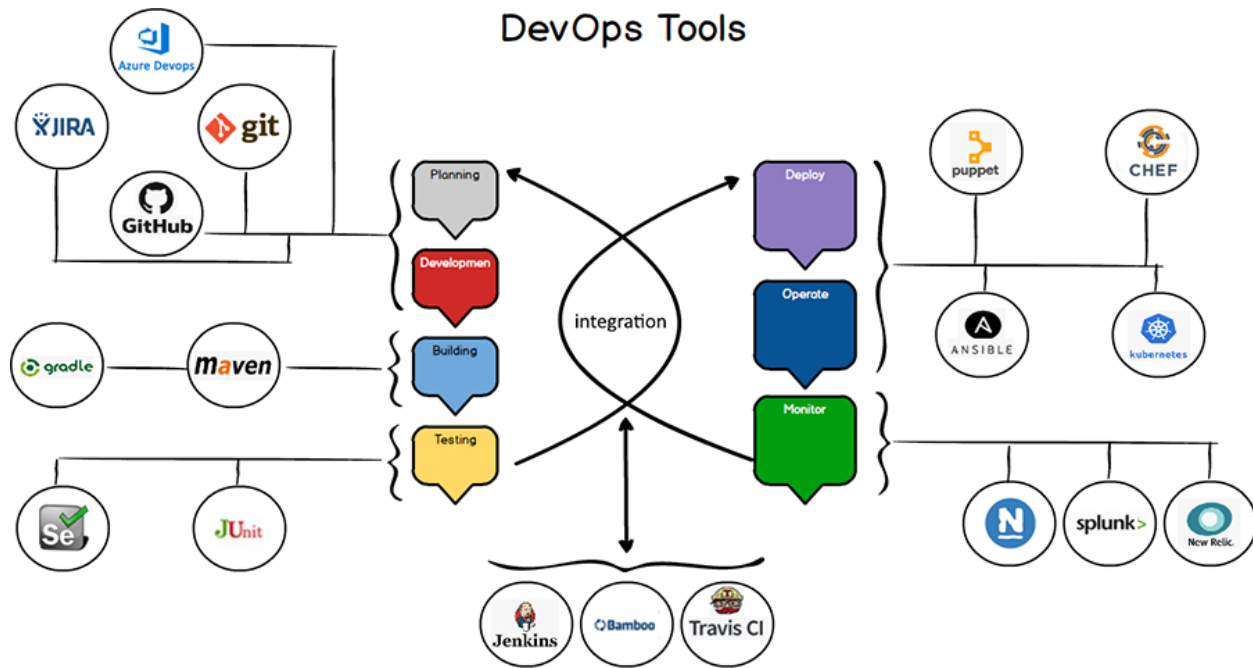
### Q5. Where DevOps tools are used?

**Ans.** To Implement DevOps, Automation plays a major role and we need some tools for implementation. Following are the major areas where tools are used.

- Planning
- Code management
- Build and Testing
- Release management
- Deploy and Monitor

## Q6. What DevOps tools you know?

**Ans.** Here's a list of tools which will help you to implement DevOps:



### Tools for Planning

- Azure DevOps Boards
- Jira

### Tools for Code Management

- Git
- TFVC

### Tools for Testing Automation

- Selenium
- JMeter

### Tools for Build, Continuous Integration, Continuous Deployment and Monitor

- Ant
- Maven
- Jenkins
- TeamCity
- Docker
- Kubernetes
- Puppet
- Chef



- Ansible
- Nagios
- Shippable

## Q7. Can you list out DevOps best practices?

**Ans.** Following are the best DevOps Practices:

- Infrastructure as Code (IaC): where teams (Developers and Operations) automatically manage programmable or software-defined infrastructure.
- Continuous Integration: Where developers continuously integrate their code into a shared repository like git.
- Automated Testing: Where testing team writes a script to automate the testing.
- Continuous Deployment: when developers make any code commit and if it passes the automated testing phase, that will automatically deploy the latest changes on the staging or production server.

Plus, there are few more practices you can consider for Load Testing and Monitoring as follows.

- Release Management
- App Performance Monitoring
- Load Testing & Auto-Scale
- Availability Monitoring
- Change/Configuration Management

## Q8. Can you explain the uses of the planning tools in DevOps?

**Ans.** For successful project management, Project planning is a very important part. There are many Open-source as well as paid tools available in the market like Redmine, Agilean, LeanGear, Trello, Basecamp, Wrike, Jira and Azure Boards.

My favourite tool is Azure boards which is part of Azure DevOps, as it has everything thing from planning to code management and testing to deployment.

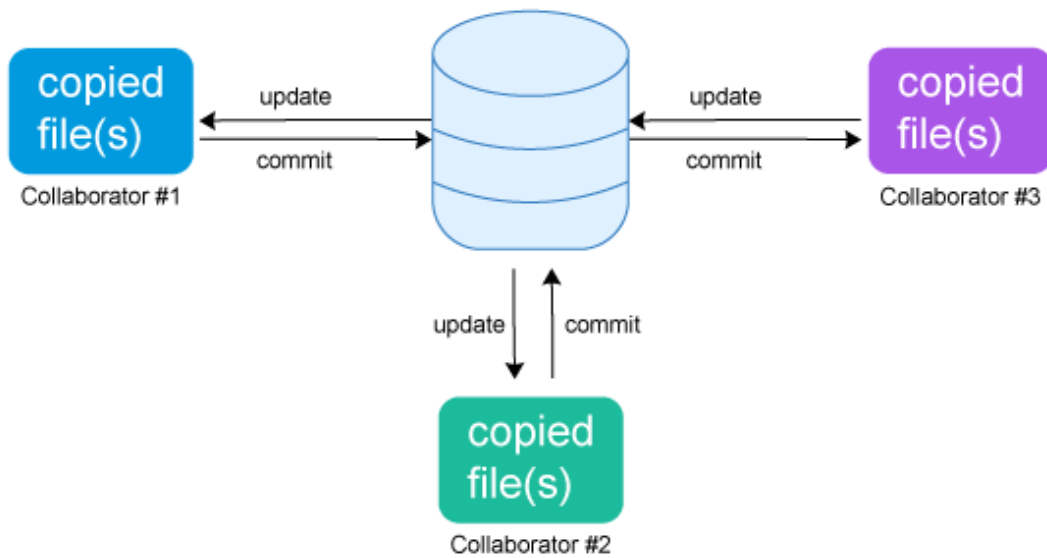
## Q9. Can you explain the uses of the Version control tools in DevOps?

**Ans.** When we are working with a team Collaboratory on the same project, Version control plays a major role in managing and keeping the copies of code or files from every stage of the project lifecycle.

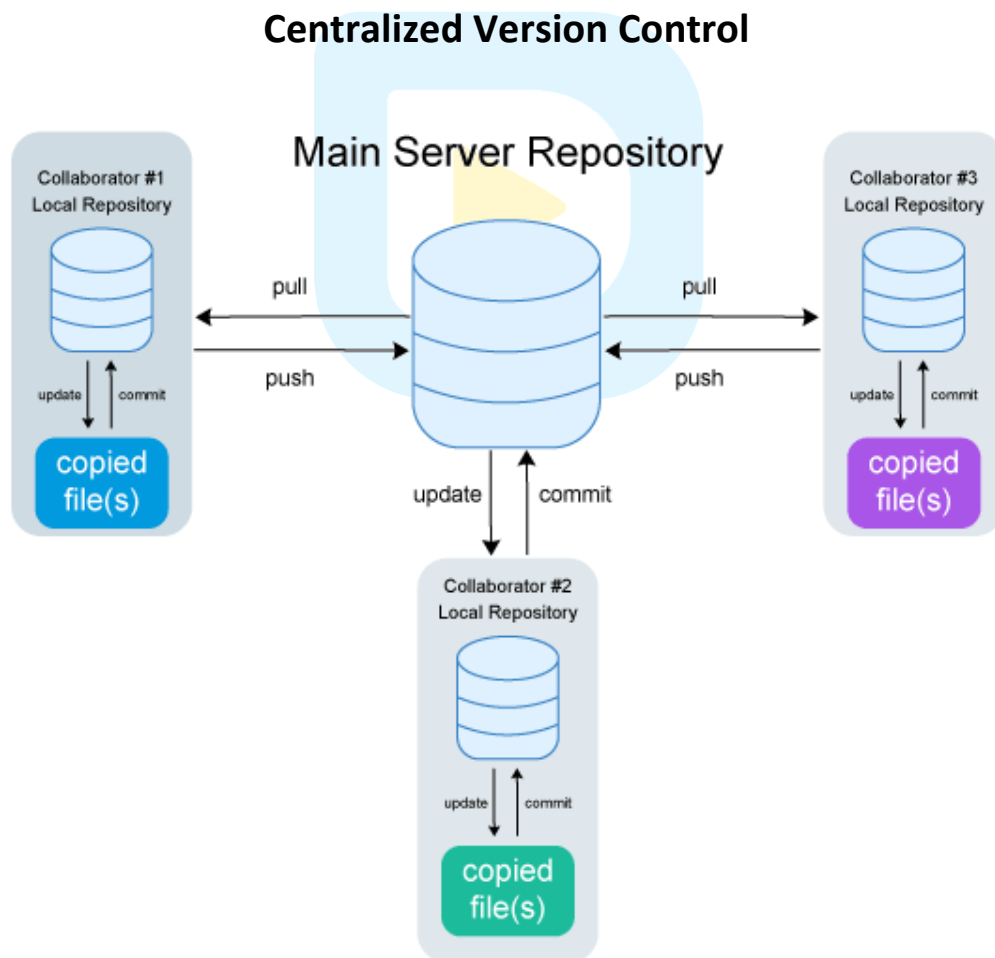
There are two types of version control:

1. Centralized Version control
2. Distributed version control.

## Main Server Repository



## Centralized Version Control



## Distributed Version Control

Git is Distributed, open source and very lightweight version control tool, whereas Team Foundation Version Control is a Centralized version control system available in Azure Repos.

### Q10. Which tools are useful for Continuous Integration?

**Ans.** Azure Pipelines has support for all the platform like Linux, macOS and Windows also we can consider following tools for the Continuous Integration.

- Jenkins
- TeamCity
- Travis CI
- Bamboo
- GitLab CI
- CircleCI
- Codeship

### Q11. Which tools are useful for Continuous Deployment?

**Ans.** Following are few useful Continuous Deployment tools

- Azure Pipelines for Deployment.
- Jenkins.
- TeamCity.
- Bamboo.
- ElectricFlow.
- Octopus Deploy.
- AWS CodeDeploy.
- DeployBot.
- Shippable.



### Q12. What is Infrastructure Configuration?

**Ans.** In today's fast and competitive market, many companies demand a faster deployment process and Infrastructure Configuration, so treating Infrastructure as software and manage the processes such as version control, continuous integration, deployment and automated testing will make infrastructure changes more rapidly and reliably.

### Q13. What tools are useful for Infrastructure Configuration?

**Ans.** Following are the most popular tools for Infrastructure Configuration.

- Chef
- Puppet
- Ansible

## Q14. What is Continuous Testing? What is the use of Test Automation in DevOps?

**Ans.** DevOps is not about jobs or tools, it's about people, culture and automation. and to implement DevOps, continuous testing plays a very important role where writing scripts for software testing and make it auto executable so that we can automate the testing and do the frequent releases using the delivery pipelines.

We have to write unit tests to achieve Continuous Testing.

## Q15. Which tools are useful for Continuous Testing?

**Ans.** For test Automation there are many open source tools are available, following are few names

- Selenium
- JMeter
- JUnit
- AntUnit
- Cucumber
- SoapUI
- Tricentis Tosca

## Q16. What is Continuous Monitoring?

**Ans.** DevOps and Agile are all about inspection and adaption to make continuous improvement in our process, and for that, we must have to monitor continuously the process, application performance and infrastructures.

By doing continuous infatuates monitoring, we can visualize the process and get the early alerts in real time. By analyzing that data, we can take decision wisely and adapt the things and process that best suits for the business.

## Q17. What tools are useful for Continuous Monitoring?

**Ans.** For continuous monitoring **Nagios**, **SysDig** and **Zabbix** are the famous open source tools available in the market. **Infrastructure as code** (IaC) vendors like Amazon and Google have tools like **AWS CloudWatch** and **StackDriver**. Also, New Relic is a good option for continuous monitoring.

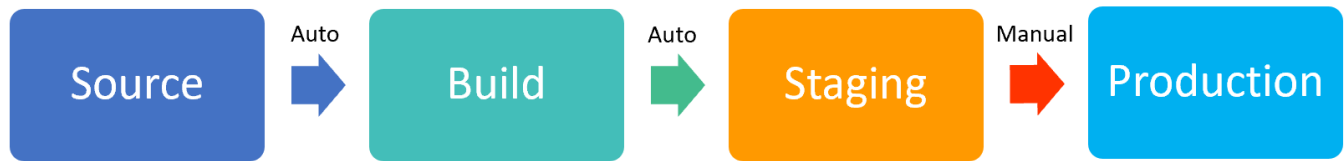
## Q18. What is Continuous Integration?

**Ans.** **Continuous Integration** means Integration of completed code in the common repository which is shared across the team. Each time the developer starts the code check-in, it will automatically get verified by automated tests and automated build. Version control plays a major role here as we can manage all code with branching policy to avoid code conflicts between the team.



### Q19. What is Continuous Delivery?

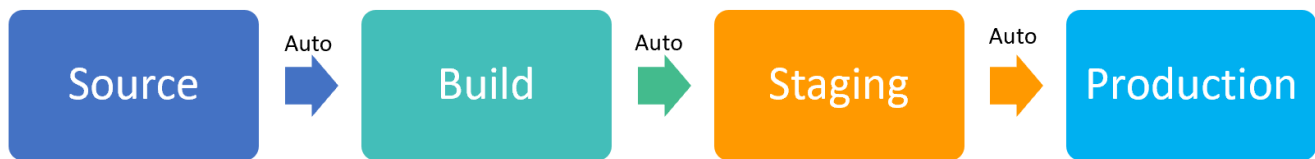
**Ans.** **Continuous Delivery** is one step further of Continuous Integration, as once we have a successful build ready and if it passes the automated acceptance tests as per the business need, we can deploy manually on production.



Continuous Delivery

### Q20. What is Continuous Deployment

**Ans.** **Continuous Deployment** is a further extension of **Continuous Delivery**, where the deployment to production is automated without any human interaction. Once the developer makes the code check-in deployment pipelines will automatically start the integration and deployment automatically on the production until and unless there is any failure in the acceptance test script.



Continuous Deployment

It is a very fast and reliable way to release your product fast in the market.

### Q21. What is the container? Why we need containers?

**Ans.** The container will provide a way to package your software code, its configurations, Packages and its dependencies into a single unit or object.

We can have multiple containers that can run on the same machine and share the operating system with other containers so that we can run anywhere fast and reliable and consistent deployments.

### Q22. What containers Azure DevOps support?

**Ans.** Azure DevOps has the following container support.

- Docker
- Asp.Net with containers.
- Azure Kubernetes services.
- Azure Service Fabric application with Docker support.

# 2

## Azure DevOps

### Q1. What is Azure DevOps? What is the difference between Azure DevOps and VSTS Online?

**Ans.** Microsoft Visual Studio Team Services, now known as **Azure DevOps** having excellent application lifecycle management tool.

We can plan a project with Agile tools and templates, manage and run test plans, Version control source code and manage the branches, deploy the solution across all platform using Azure Pipelines, by implementing Continuous Integration and Continuous Deployment.

### Q2. What services Azure DevOps Provides? Or What is new in Azure DevOps?

**Ans.** Azure DevOps provides full application lifecycle management from planning to coding, and from testing to build and deploy.



Azure Boards



Azure Repos



Azure Pipelines



Azure Test Plans



Azure Artifacts

**Azure Boards:** Azure board provides service to manage your works, using the Agile Scrum and Kanban templates, Dashboard that we can customize and reporting.

**Azure Repos:** Azure Repos is a code version control system that can manage your code and its version.

Using that we can track the changes, whenever team edits code it has all the version history so later, we can coordinate with the team and merge the changes.

The azure repo has both a centralized version control system as well as a distributed version control system.

*Git:* Distributed Version Control System

*Team Foundation Version Control (TFVC):* Centralized Version Control System.

**Azure Pipelines:** Azure Pipelines has all the features that are required for supporting Continuous Integration (CI) and Continuous Deployment (CD).

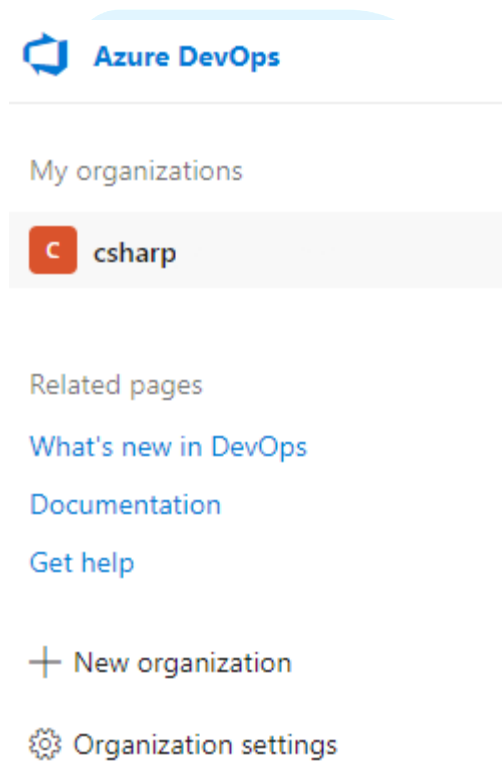
Using that we can constantly test and build the code and release it to any target.

**Azure Test Plans:** Azure test plan provides browser-based test management using that we can manage all the testing like Exploratory & manual testing, Continuous testing, Unit & functional testing also we can ask or Request stakeholder to provide feedback.

**Azure Artifacts:** Azure Artifacts is the service using that we create, host and share packages with teams. We can share code across teams, and manage all package types like NuGet, Maven, npm, Gradle etc.

### Q3. What is Organization in Azure DevOps? How you will plan your organization structure?

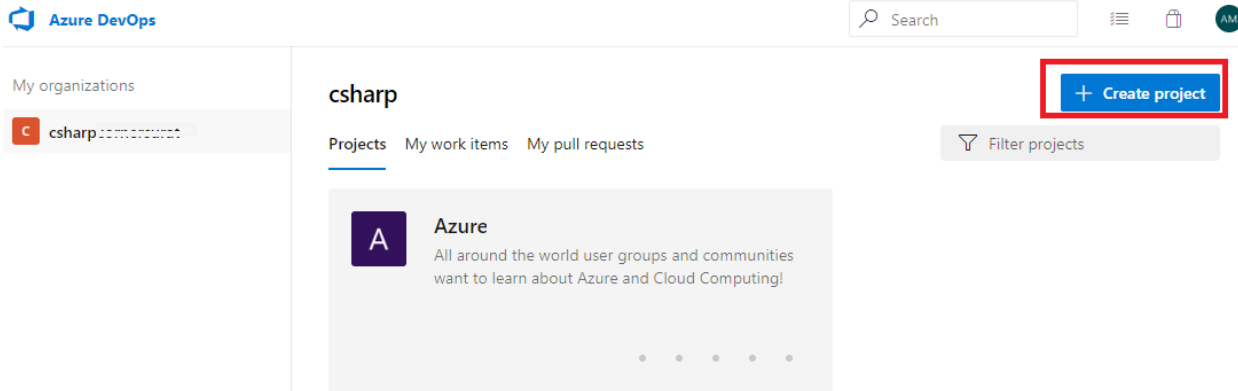
**Ans.** An organization is like a workspace of a particular company where they can manage all the projects, users and manage roles and permission for all operations.



You can create a new organization, manage and plan your projects under the organizations.

### Q4. How to create a project in Azure DevOps?

**Ans.** Once login in Azure DevOps and connect to your organization, from the Dashboard top right corner click on Create Project button to create a new project under the selected Organization.



You can provide the project name and set the visibility, i.e. Public or Private.

Also, we can choose Version Control from Git or Team Foundation Version Control and choose the work item template Agile, Scrum, CMMI or Basic to plan and manage the project.

The 'Create new project' dialog box is shown. It has a title bar with a close button. The form includes: a 'Project name' field with a red asterisk and a green checkmark, containing the text 'Project'; a 'Description' text area with a green circular icon; a 'Visibility' section with two options: 'Public' (with a globe icon) and 'Private' (with a lock icon and a blue selection circle); an 'Advanced' section header; a 'Version control' dropdown menu set to 'Git'; a 'Work item process' dropdown menu set to 'Basic'; and 'Create' and 'Cancel' buttons at the bottom right.



## Q5. What is the difference between Azure DevOps Services and Azure DevOps Server?

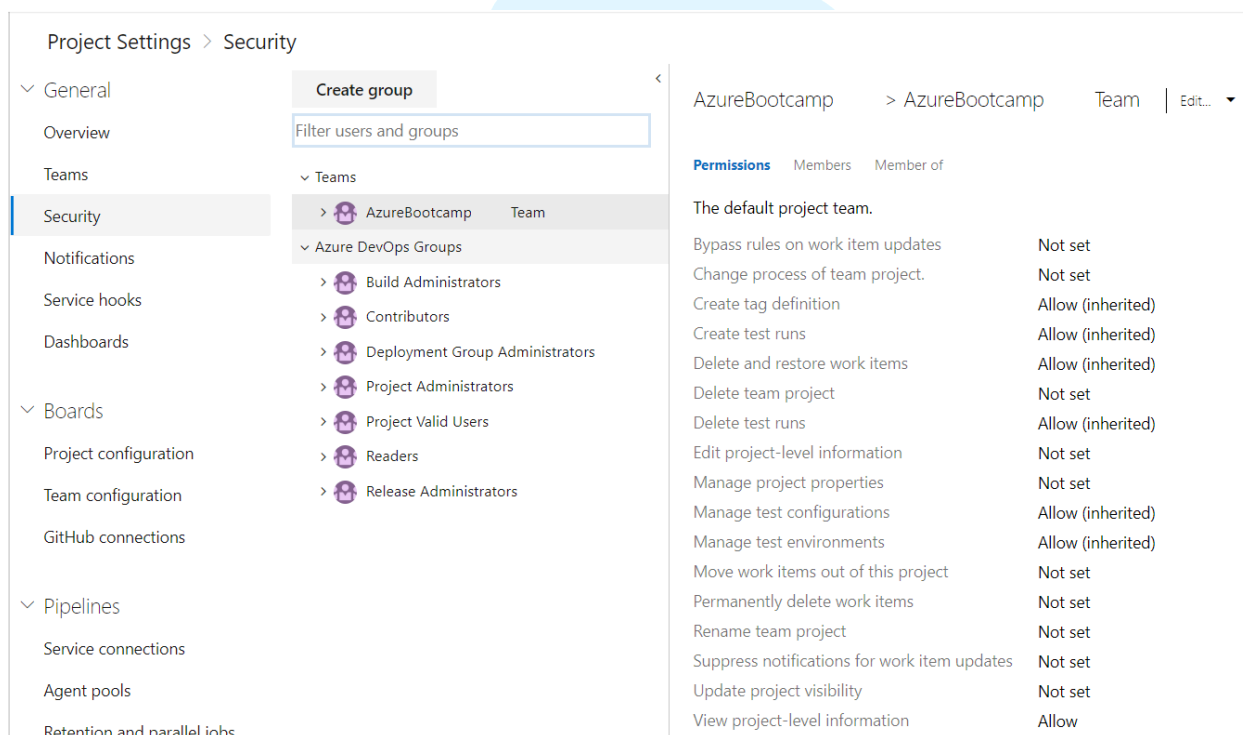
**Ans.** Team Foundation Server is now Azure DevOps Server and Visual Studio Team Services is now Azure DevOps Services. Both provide the same essential services, but Azure DevOps Services offers cloud platform whereas Azure DevOps Server is the on-premises server.

Many organizations want their data on their server so they can choose the Azure DevOps Server. Although both works similar, Azure DevOps services provide benefits like Simplified server management, Access to the latest release immediately. Remote site connectivity etc.

## Q6. Can you explain permission and group in Azure DevOps?

**Ans.** In Azure DevOps, whenever you are creating a user for organization or project level, in order to access the code, builds, plans and work tracking, the user must have access and permission for that. Using Permission and access we can manage that such an easy way.

There are by default groups and you can grant or deny permissions to users, built-in security groups, or Azure Active Directory group (Azure AD).



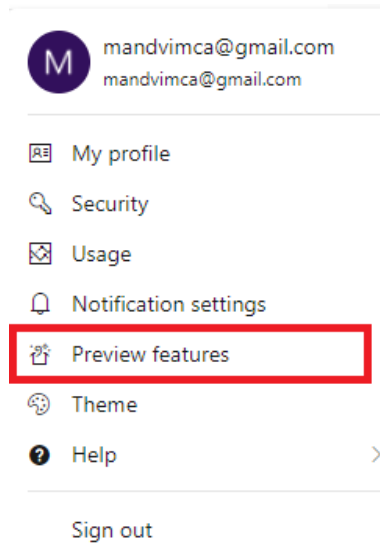
Permissions	Members	Member of
The default project team.		
Bypass rules on work item updates		Not set
Change process of team project.		Not set
Create tag definition		Allow (inherited)
Create test runs		Allow (inherited)
Delete and restore work items		Allow (inherited)
Delete team project		Not set
Delete test runs		Allow (inherited)
Edit project-level information		Not set
Manage project properties		Not set
Manage test configurations		Allow (inherited)
Manage test environments		Allow (inherited)
Move work items out of this project		Not set
Permanently delete work items		Not set
Rename team project		Not set
Suppress notifications for work item updates		Not set
Update project visibility		Not set
View project-level information		Allow

Once setup with rules for a particular group, whenever we add member and assign a group to them, that rules automatically grant them the correct access levels when they access the Azure DevOps organization.

## Q7. Can I still use the old interface of VSTS Online?

**Ans.** Yes, you can use the old User Interface of the VSTS in Azure DevOps.

From the profile, tab navigates to **Preview Features**.



Turn off the New Navigation, to switch to the old User Interface.

### Preview features

The following preview features are available for your evaluation. Help us make them better!

for me [redacted@redacted.com]

**Experimental Themes** ☐ Off

Adds an early preview of various themes to the Theme management panel.

**Git commit menu extension points** ☐ Off

Opens up Git commit context menu to contributed actions.

**New build result page** ☒ On

Lights up new build results page.

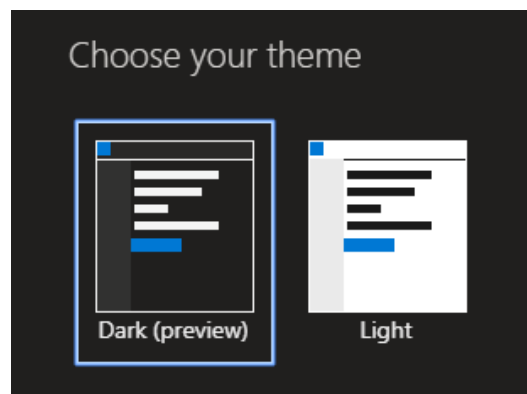
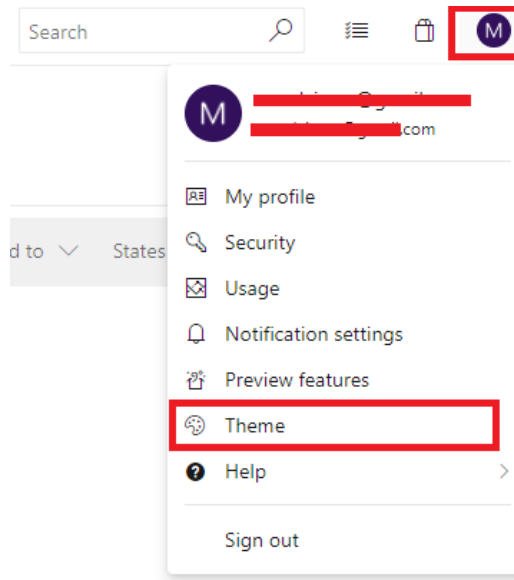
**New builds hub** ☒ On

Lights up new builds hub.

**New Navigation** ☒ On

Turns on the new global navigation experience. [Learn more](#)

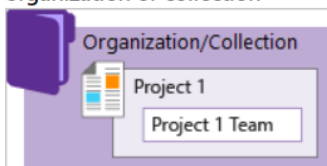
Also, there is a Theme selection option now so the user can have two theme option Dark and Light.



## Q8. What is Collection and Collection Settings in Azure DevOps?

**Ans.** The collection is a hub or container for a number of projects in Azure DevOps. Once you setup your account in Azure DevOps a default collection has been created with default settings.

Single project and team defined within an organization or collection



Multiple projects and teams defined within organization or collection

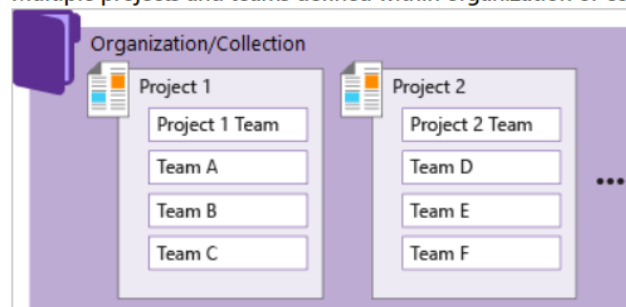


Image resource: <https://docs.microsoft.com>

## Q9. Can stakeholders who don't use Visual Studio participate on our team?

**Ans.** Yes, Stakeholder can access Azure DevOps and Participates in collaborative works, there is no need to use Visual Studio Integrated Development Environment (IDE) to work with Azure DevOps.

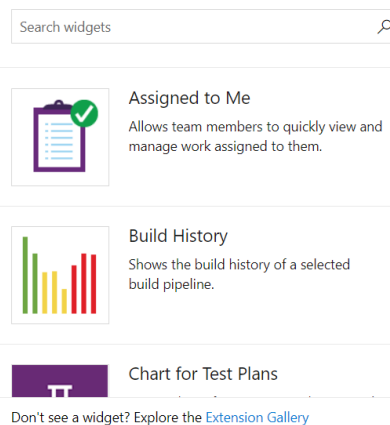
As a stakeholder access one can add and check progress, modify work items, manage to build and release pipelines, and view dashboards.

You can access test and feedback tools, provide feedback and direction and feature ideas.

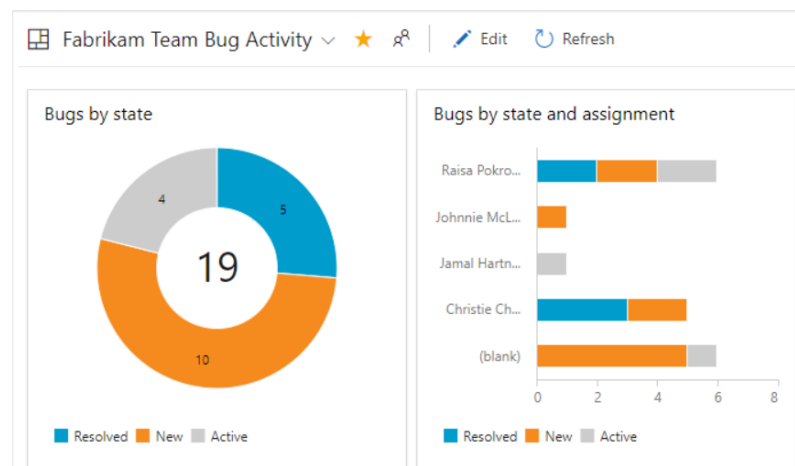
## Q10. What is Dashboard in Azure DevOps?

**Ans.** Using the Dashboard, we can easily access important information related to Works Assigned, Build History, and Test Plans. Customizable and configurable dashboard and widgets provide deep inside of your project and progress workflow.

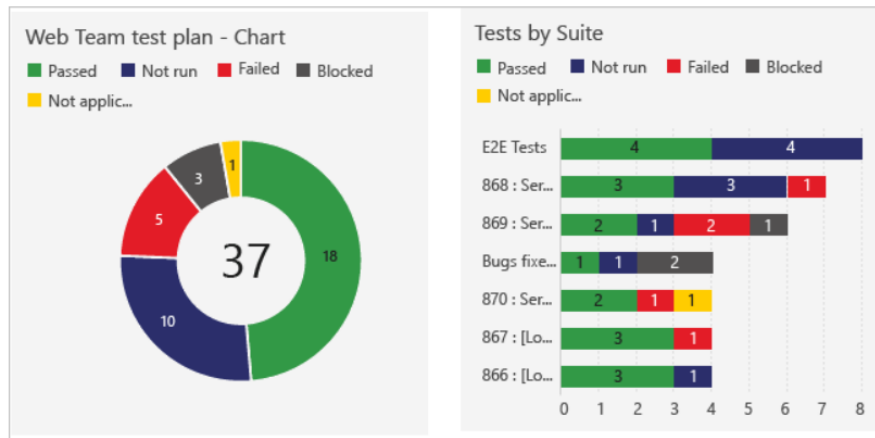
Add Widget



### Sample Agile tool light-weight charts



## Sample light-weight test charts



## Code, build, and release chart widgets

**Code Tile**  
Displays the number of recent changes in a code repository.

**Pull Requests**  
Check on the status of your pull requests.

**Chart for Build History**  
Shows the build history of a selected build definition.

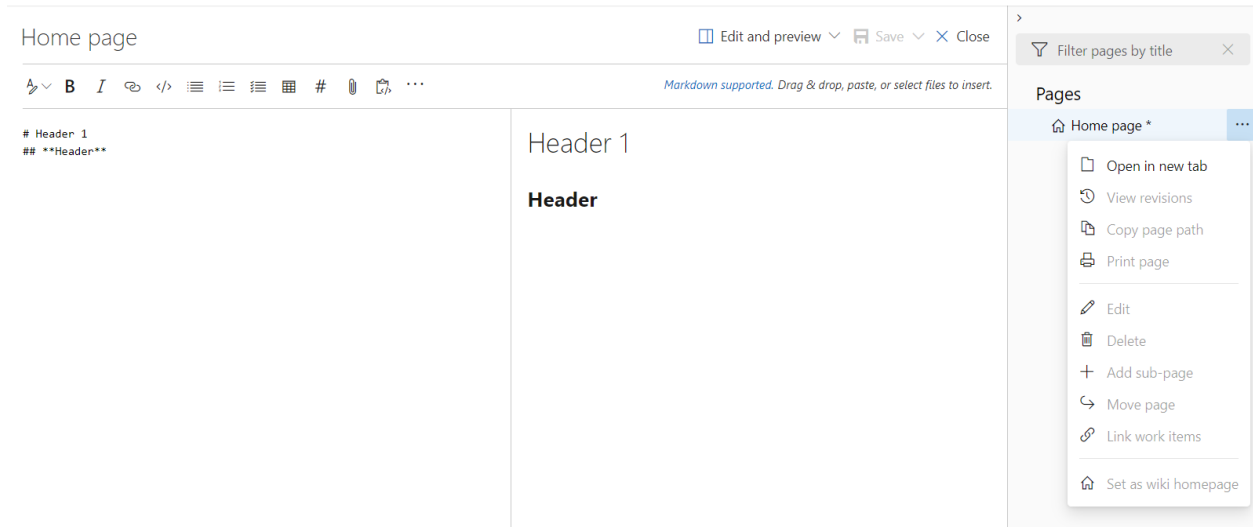
**Deployment status**  
Shows the deployment and test status of a branch across the environments in your release definitions.

It provides Charts, Widgets, reports, and Integration with Power BI.

## Q11. What is Wiki in Azure DevOps?

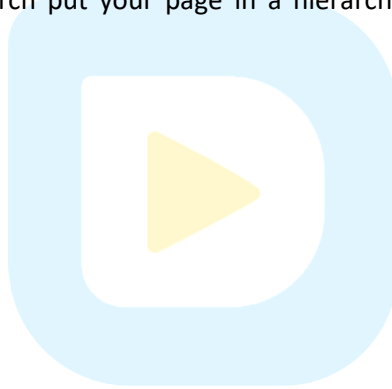
**Ans.** Wiki makes your documentation work easy. We can create rich documents using markdown editor to add rich formatting, images links and tables. You can also view your editing in the side-by-side preview pane.

Team members collaborate and work together to create project documentation, user manuals, functional documents, technical documents etc.



Use Wiki to explain project Vision, epics, specifications, release notes, coding standards and best practices or other content with team members and stakeholders to learn.

Easily discover pages by powerful search put your page in a hierarchical order to find pages from the right category.



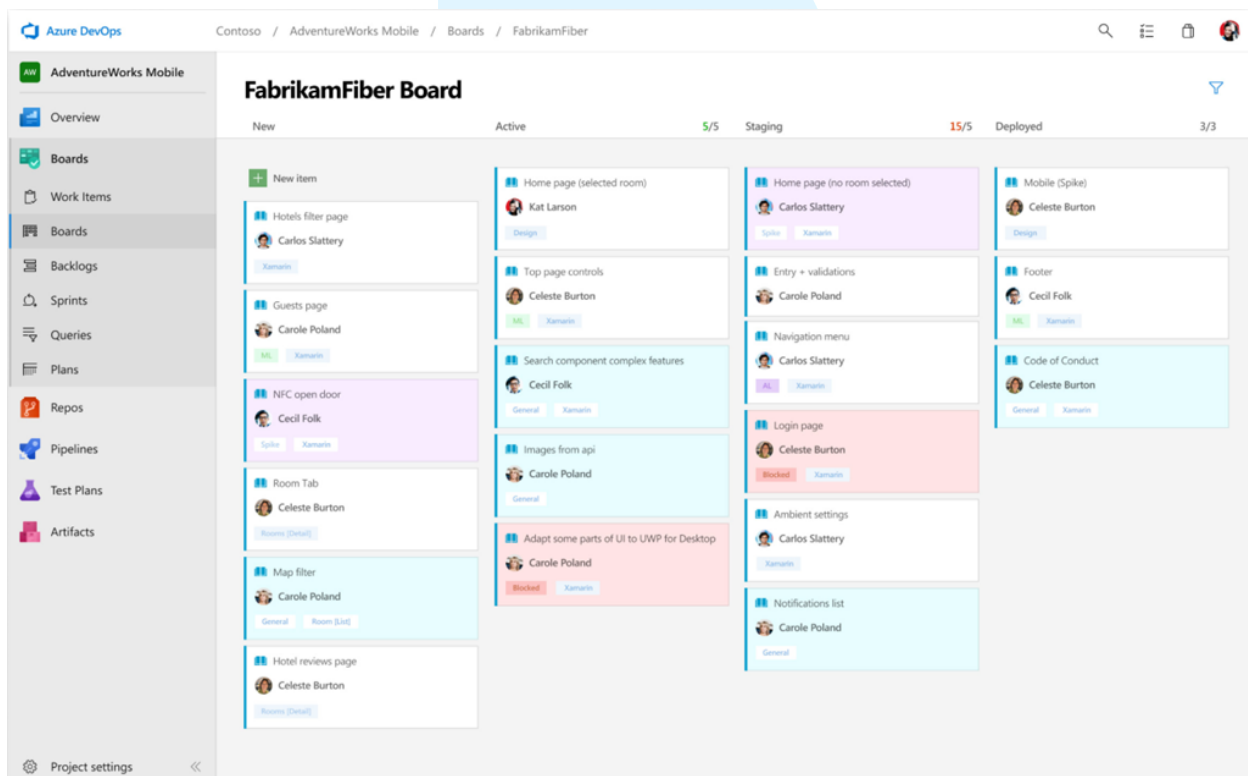
# 3

## Azure Boards

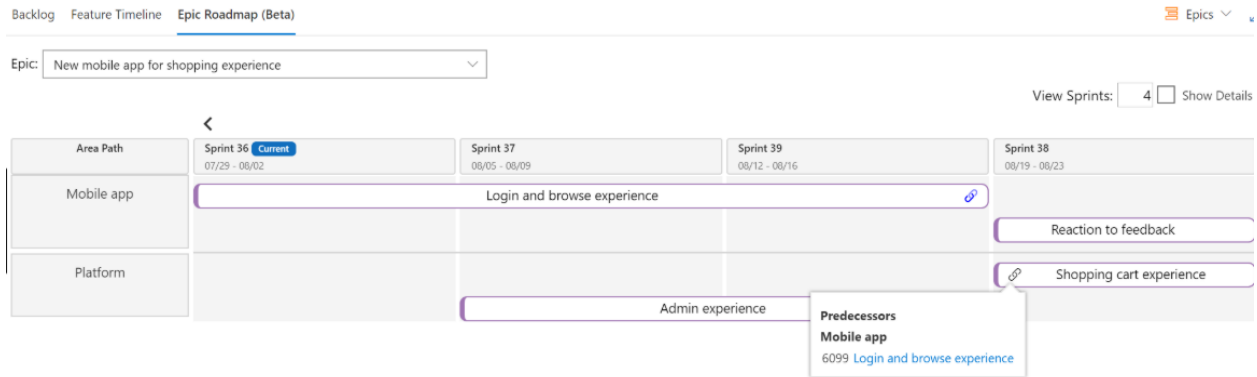
### Q1. What are Azure Boards?

**Ans.** Using Azure Boards, teams can plan their works. There are 3 templates like Agile, Scrum and CMMI using that team can plan, track, and check progress across teams, manage backlogs items do their Sprint Planning and track progress using Kanban board which has a rich feature like drag and drop to move and manage work items.

The team can use and manage customizable dashboards and use dynamic query creation tools for MIS and reports.



You can also plan your upcoming project using the timeline feature.



## Q2. What is the Process? What different types of templates available in Azure Boards?

**Ans.** A process means building objects of the work item tracking system. There are 4 process templates available in Azure DevOps – Basic (Default), Agile, CMMI, and Scrum.

Organization Settings	All processes		
	Processes	Fields	
General	Name	Description	Team projects
	Basic (default)	This template is flexible for any process and great for teams getting started with Az...	1
Overview	Agile	This template is flexible and will work great for most teams using Agile planning me...	0
	Scrum	This template is for teams who follow the Scrum framework.	0
Projects	CMMI	This template is for more formal projects requiring a framework for process improve...	0
Users			
Billing			
Global notifications			
Usage			
Extensions			
Azure Active Directory			
Security			
Boards			
Process			

You can use the Basic default template for any process with a basic start.

If you are following Agile and want to start a new project go with agile process template if working on maintenance project or support stuff where you have to work on SLA and Priorities then choose scrum process template.

And if working on a formal project which required process improvement or auditable records then go with CMMI template.



### Q3. What are the work items in Azure Boards?

**Ans.** Using work items, we can manage our project tracking process using Agile, Scrum, CMMI template, each template has its own work item type hierarchy. Using the right work items, we can manage Portfolio backlog and Product Backlog.

For example, in Agile Process template, we have Epic, Feature, User Story, Task, Bug etc.

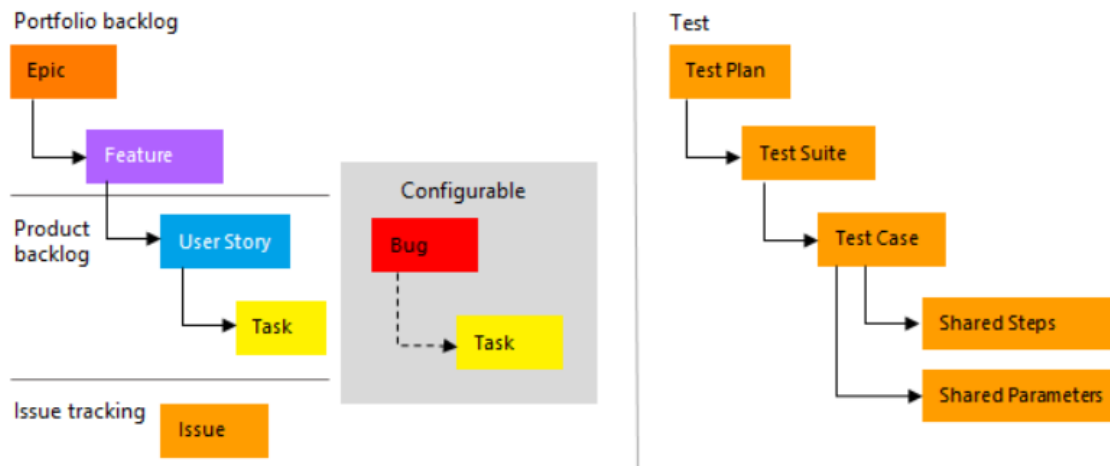


Image Source: <https://docs.microsoft.com/en-us/azure/devops/boards/work-items/guidance/agile-process>

In Scrum template, we have Epic, Feature, Product Backlog Item, Impediment, Feedback Request and response, Task, Bug etc.

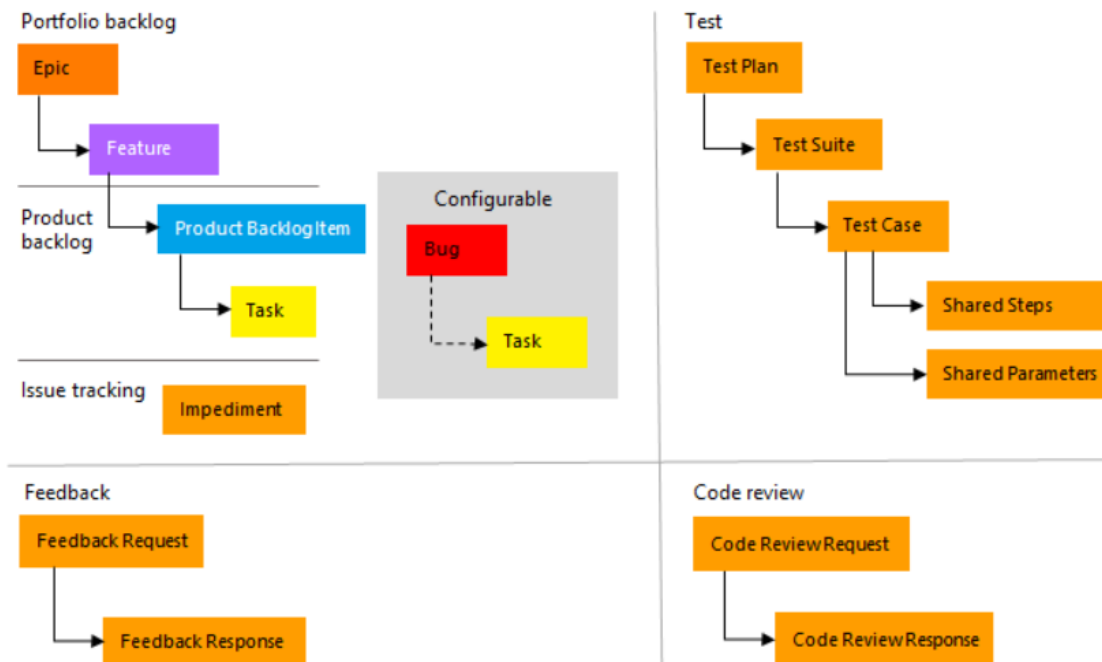


Image Source: <https://docs.microsoft.com/en-us/azure/devops/boards/work-items/guidance/agile-process>

Same way in CMMI work template we have Epic, Feature, Requirements, Tasks, Bugs, Change Request, Review, Etc.

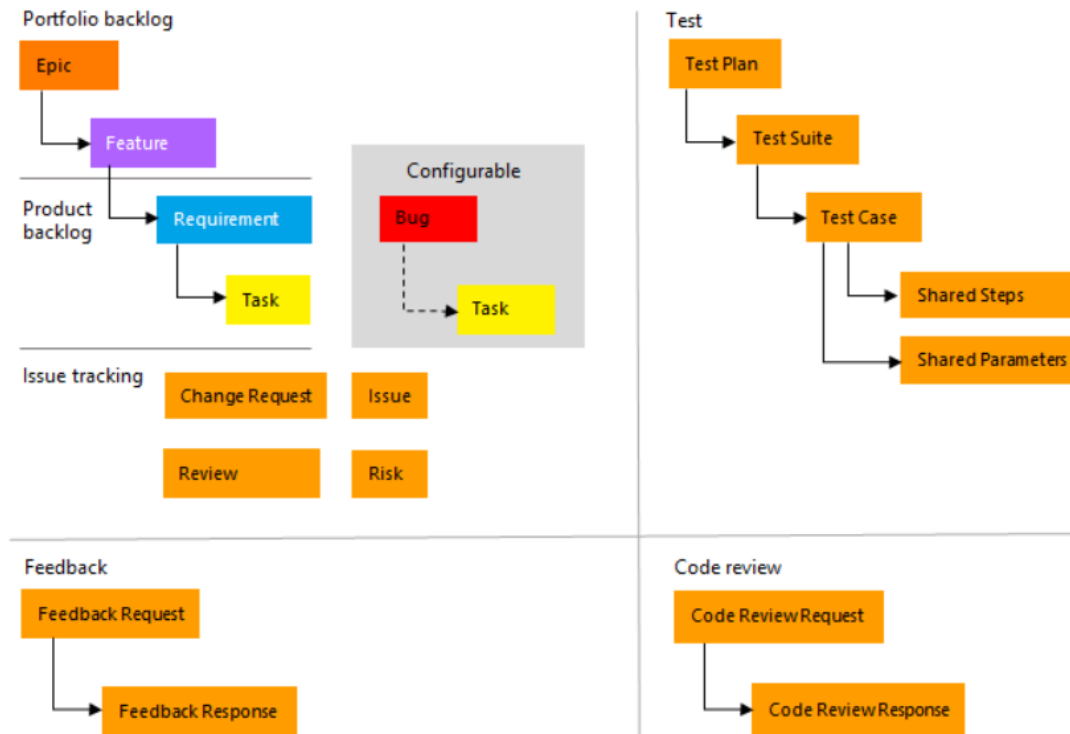
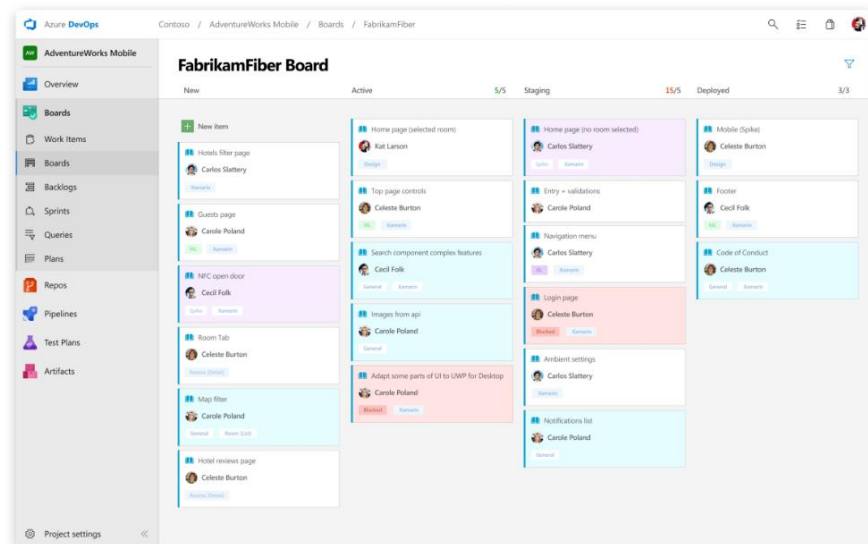


Image Source: <https://docs.microsoft.com/en-us/azure/devops/boards/work-items/guidance/agile-process>

#### Q4. What is the use of Kanban Board?

**Ans.** Kanban board is useful for visualizing and track project progress, using board we can easily identify who is working on what tasks and the status of those tasks. It will create transparency between the team and the stakeholders.



Following are the main features of Azure Kanban Boards.

- Customizable columns on your Kanban board as per the team's requirement.
- You can set the Work in Progress (WIP) limits to control work in progress.
- Easy and user-friendly status change option by just drag-and-drop.
- View the Cumulative flow chart.

## Q5. What are Portfolio backlogs?

**Ans.** Portfolio backlog management provides the facility to the Product Owner to add and manage the product backlog. Product owners can define and manage ideas and plan as Epics or Features.

Further, break down by team into the user stories and tasks.

Following is the example, where we have epic and feature items like Account Management, Service Delivery and based on that further breakdown into user stories and tasks.

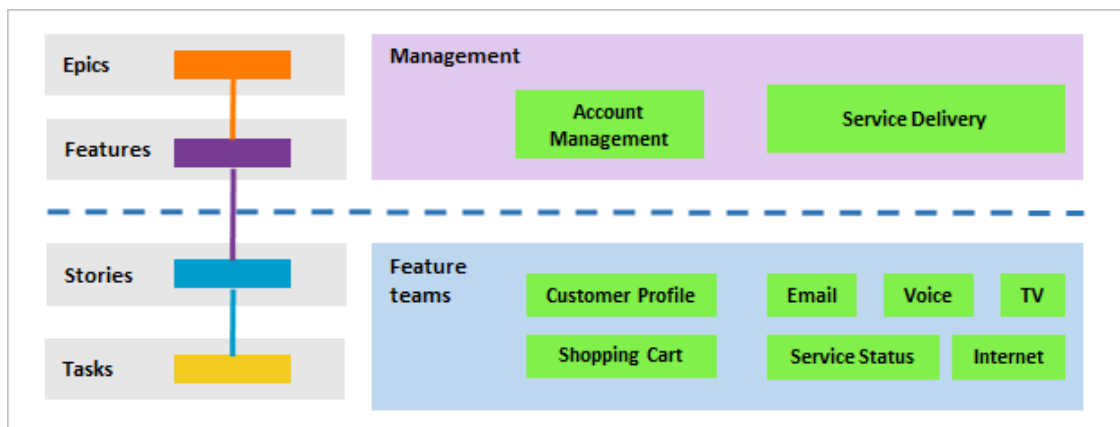
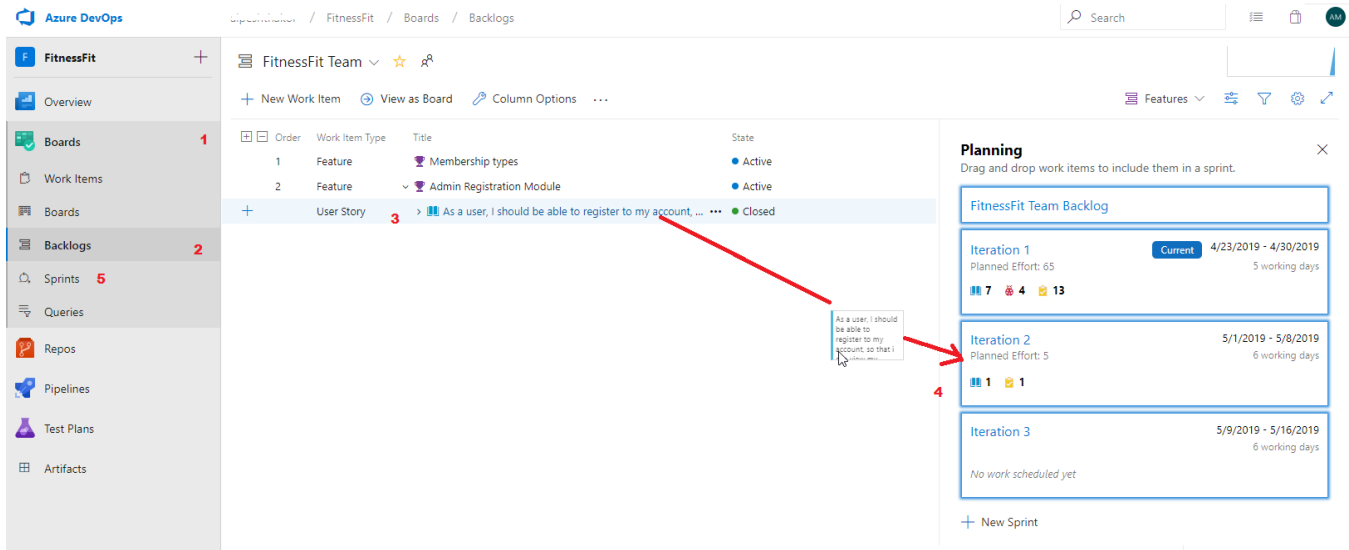


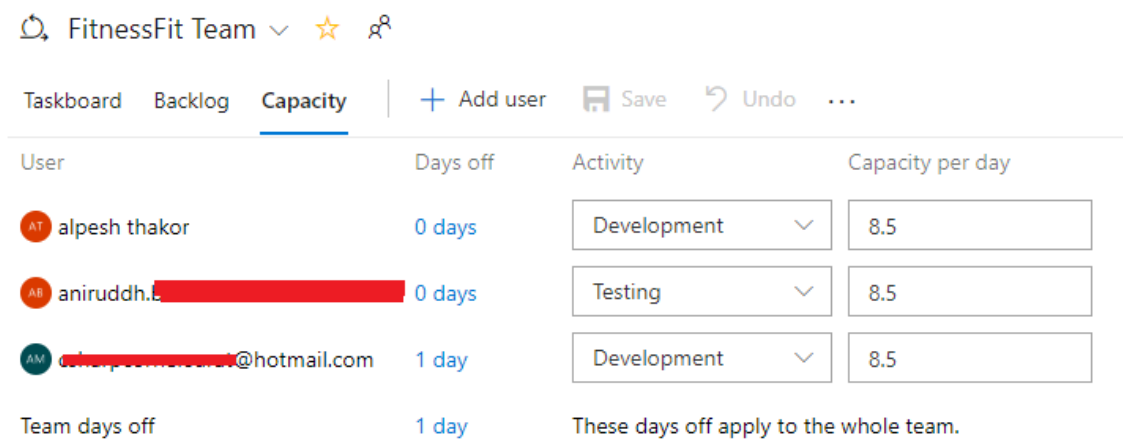
Image Source: <https://www.azuredevopslabs.com/labs/azuredevops/agile/>

## Q6. How to manage Sprint using Azure Boards?

**Ans.** Once you have your backlog items ready, all you have to do is, navigate to Backlogs from Azure boards, select the user stories that are ready for next sprint and drag and drop in the Iteration in which you want to develop that.



Once you move all the items in the next Iteration, navigates to Sprints and then select the Capacity tab.



Here you have to select or add team members, select the activities for them, set capacity per day in hours and manage any off day or holiday in the sprint for the Individual or team and then track the progress day by day.

That way one can manage and plan sprint using Azure Boards.

## Q7. What is Team capacity? How to manage Capacity in Sprint?

**Ans.** Team capacity is team member's working hours per day. You can manage team capacity from the sprint capacity tab.

FitnessFit Team

Taskboard Backlog **Capacity** | + Add user Save Undo ...

User	Days off	Activity	Capacity per day
alpesh thakor	0 days	Development	8.5
aniruddh.b...	0 days	Testing	8.5
...@hotmail.com	1 day	Development	8.5
Team days off	1 day	These days off apply to the whole team.	

Here you can add Individual day off, team day off, their activity area and working capacity per day in hours as shown in the above screen.

## Q8. What is the use of Query Editor in Azure boards?

**Ans.** Query Editor is one of the powerful dynamic query builders and reporting feature of Azure Board. Using that we can create a report dynamically by just selecting the parameter and passing the values as shown in below screen.

Queries > My Queries

Results Editor Charts | ▶ Run query + New Save query Revert changes Column options Save items Email query Copy query URL Export to CSV ...

Type of query Flat list of work items

Filters for top level work items

	And/Or	Field	Operator	Value
+ X		Work Item Type	=	[Any]
+ X	And	State	=	[Any]
+ X	And	Iteration Path	=	@CurrentIteration

+ Add new clause

ID	Work Item...	Title	Assigned To	State	Tags
48	User Story	As a user, I want to have a Home page with menu navigation so th...	alpesh thakor	Closed	
51	Epic	Epic1 - Develop full body reports after intense work outs	alpesh thakor	Active	
52	Feature	Admin Registration Module	alpesh thakor	Active	
53	Task	Dev - Creation of Home page Navigation Bar	alpesh thakor	Closed	
54	Task	Test - Creation of Home page Navigation Bar	alpesh thakor	Closed	
55	User Story	As a user, I should be able to register to my account, so that i can view ...	alpesh thakor	Closed	
56	Task	Dev- Account registration flow	alpesh thakor	Closed	
57	Task	Dev - account validation link	alpesh thakor	Closed	
58	Bug	Account registration link not clickable	alpesh thakor	Closed	
59	User Story	As a user, I should be able to reset my password so that i can login suc...	alpesh thakor	Active	
60	Task	Test - Account registration workflows	alpesh thakor	Closed	
61	Task	Dev - Password reset flow	alpesh thakor	Closed	
62	Task	Test - Password reset flow	aniruddh.bordewala@...	Closed	

## Q9. How to map Requirements with Feature item?

**Ans.** To map user stories with feature item, from the backlogs just drag and drop the item on the particular feature item from the right-side mapping area as shown in below screen.

Mapping

Drag and drop work items to map them to Features.

Features for FitnessFit Team

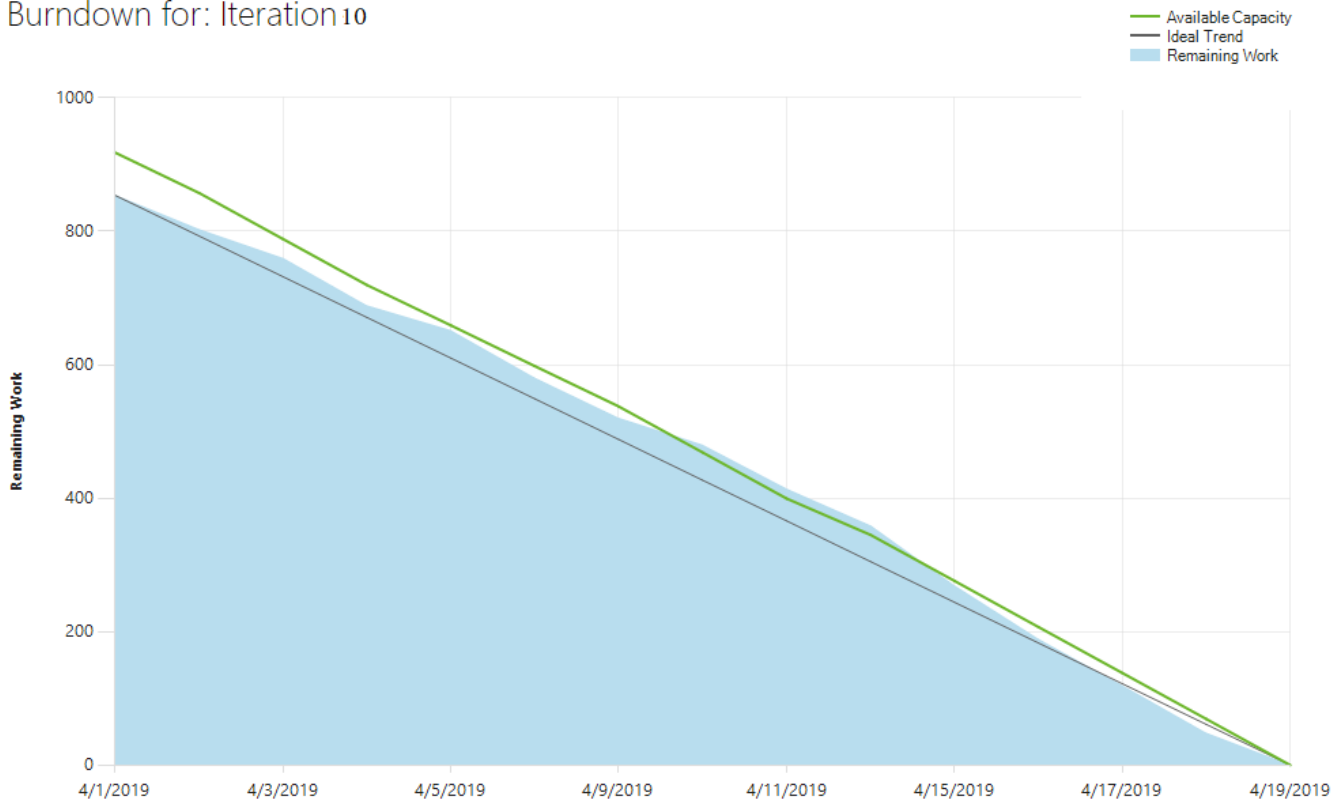
- Membership types
- Admin Registration Module

Order	Work Item Type	Title	State	Story ID	Value Area
1	User Story	As a user, I should be able to view daily workout duration...	New	21	Business
2	Bug	error while loading membership details for a user	New	1	Business
3	User Story	As a user, I should be able to reset my password so that i ca...	Active	8	Business
4	Bug	User can be registered with duplicate username	New	1	Business
5	Bug	Error message while user clicks on reset password button	New	2	Business
6	User Story	As a user I would like to have an cancel option so that i can ...	Active	5	Business
7	User Story	As a user I would like to select a personal trainer from a list, ...	New	3	Business
8	User Story	As a user I would like to upload my image so I can set my pr...	New	3	Business

## Q10. What is Burndown Graph in Azure DevOps, how to check the burndown graph of a sprint?

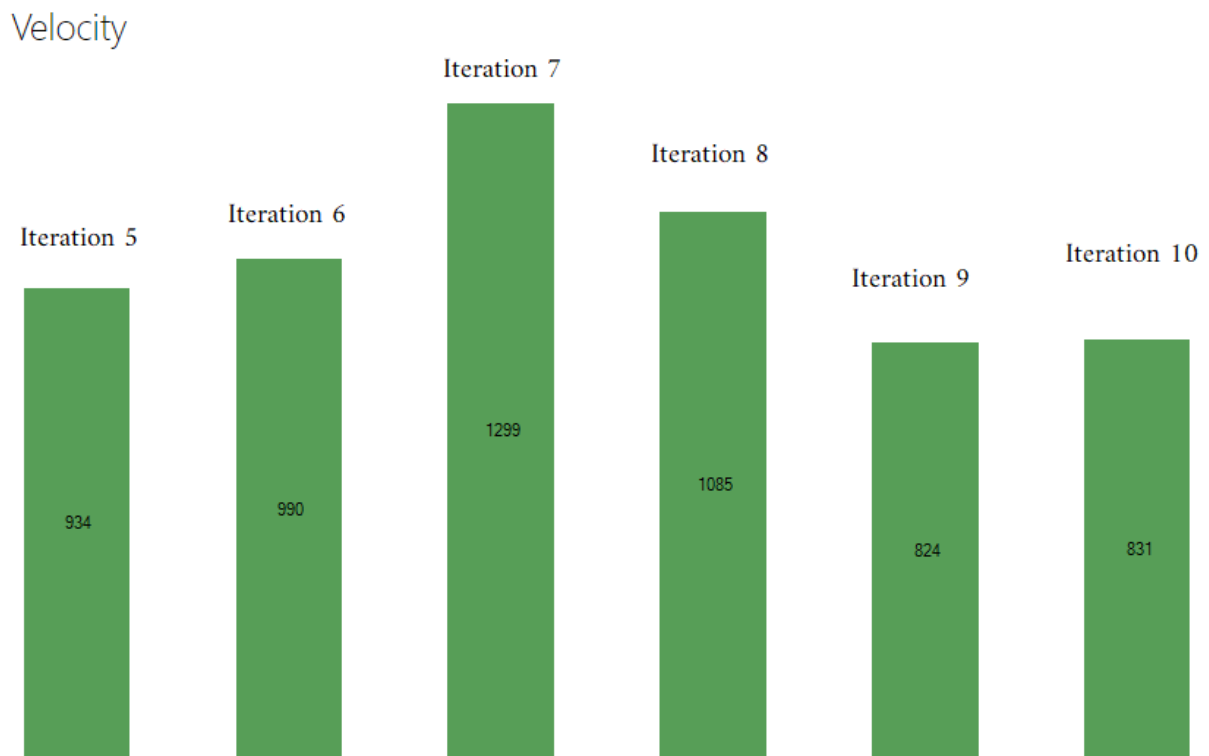
**Ans.** Burndown graph represents the remaining work of a Scrum Team. The vertical axis represents the story points or hours and vertical axis represent the dates (between the sprint start date and end date).

Burndown for: Iteration 10



### Q11. What is Velocity? How to check Velocity for a particular Team?

**Ans.** Velocity is the amount of work team can manage during the single sprint.



To check velocity report in Azure Boards, navigate to Backlogs and from the upper right-side corner click on velocity report. It will open the Velocity report of the selected team or area.

# Azure Repos

## Q1. What is version control?

**Ans.** Version Control means keeping the copies of your code or files from every stage in its project lifecycle. Using Version control system, we can manage all versions of our code with representing a single version at a time.

Version control manages and saves a snapshot of the changes permanently so you can recall it later if you need.

## Q2. What is Azure Repos?

**Ans.** Repo (Repository) is your code or project's folders and files that you want to track. While working with a team using the repo team can work together and collaborate.

Azure DevOps provides two Repos models of version control: Git and TFVC (Team Foundation Version Control)

Using repo, we can upload code, and invite team members to work in the repo. It supports IDE like Visual Studio, Web, Xcode, Eclipse, Command-line and IntelliJ.

we can also import an existing repo from GitHub, Bitbucket and GitLab.

## Q3. What are the benefits of Azure Repos?

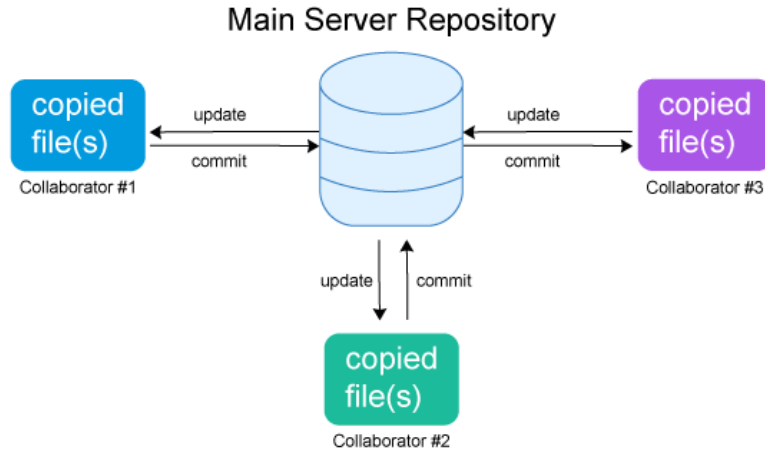
**Ans.** Using Azure Repos and Git or TFVC version control system we can manage and clone existing repos, save work with commits and rollback, create and manage code branches share and update the code with push-pull-fetch mechanism, review code with pull requests and review history.

## Q4. What is Team Foundation version control (TFVC)?

**Ans.** Team Foundation Version Control is a Centralized Version Control system provided by Azure DevOps to manage your code and files and track changes you make in your code over time.



## Centralized Version Control

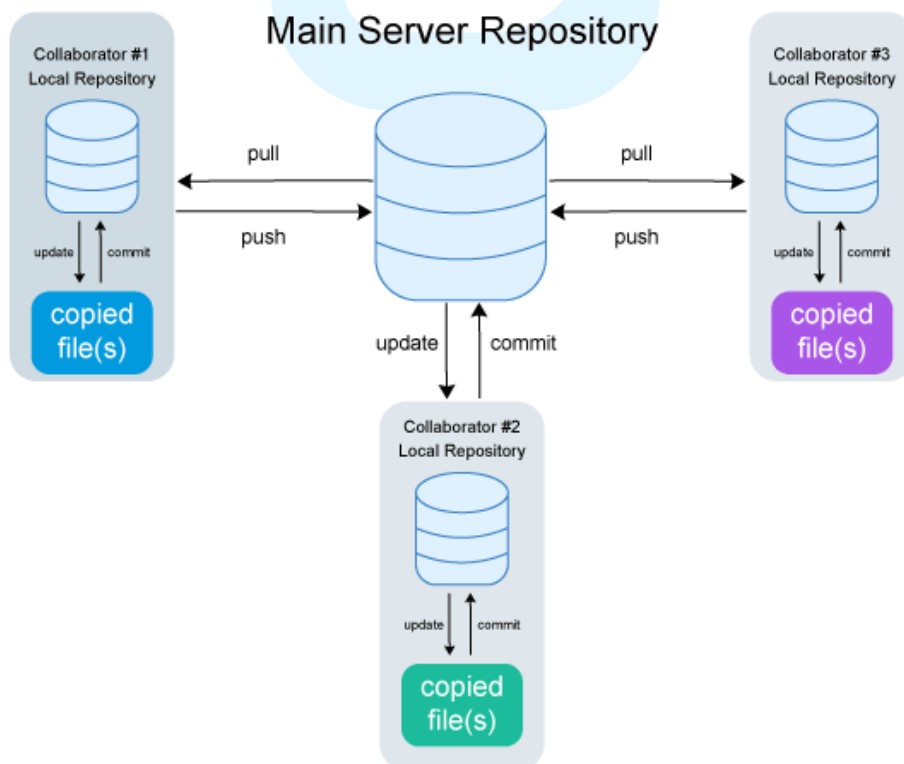


In centralized version control, System changes are committed by developers and it directly goes into the main server repository. So, any single point of failure or change can destroy all builds. Also, remote commits are very slow in a Centralized System.

### Q5. What is Git?

**Ans.** Git is an Opensource Distributed Version Control system that is designed to manage project version control speedy and effectively.

## Distributed Version Control



In the distributed Version control system, all team members have their local copies of files on the local repo, and when they push or commit the changes are stored at local repo first. As per above screen, you can see that the commit was first created locally, and then after checking you can Sync changes to the server, that means we are pushing code from the local repo to main repos or on the server repo.

## Q6. What is the difference between Centralized version control and distributed version control?

**Ans.** Centralized version control system you always need connection with the server so remote commits are very slow, in Distributed version control we have local repos so commits are fast and no active connection needed with the server all the time.

Single point of failure or unsolicited change can destroy all builds in a Centralized System.

Git is open source and it supports all platforms and multiple sets of languages and frameworks.

Git has an automatic backup mechanism of the repository, and all the history managed so well for the pull, push and commits. When one repo gets lost take one of those present on every workstation.

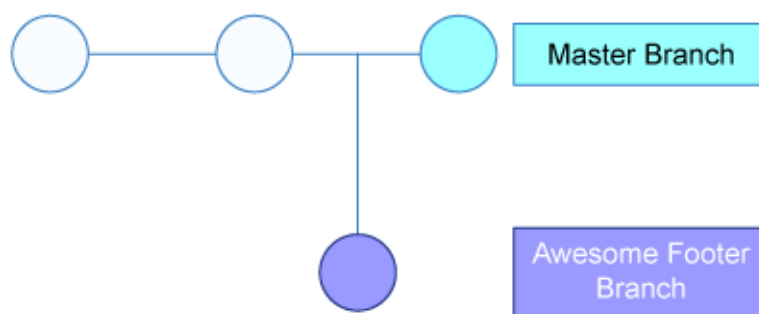
Branching and merging algorithms are much more efficient in Git. So, compare to TFVC, Git is very advanced and with rich features.

## Q7. What is Branch? How to create a new branch in Azure Repos?

**Ans.** Branching a feature of a version control system using that team can work collaboratively.

Just imagine we have a project tree and then we have projects features we can create feature wise branches and the team can work on selected branches, once they finish the work the all they have to do is merge the feature branches to the main branches.

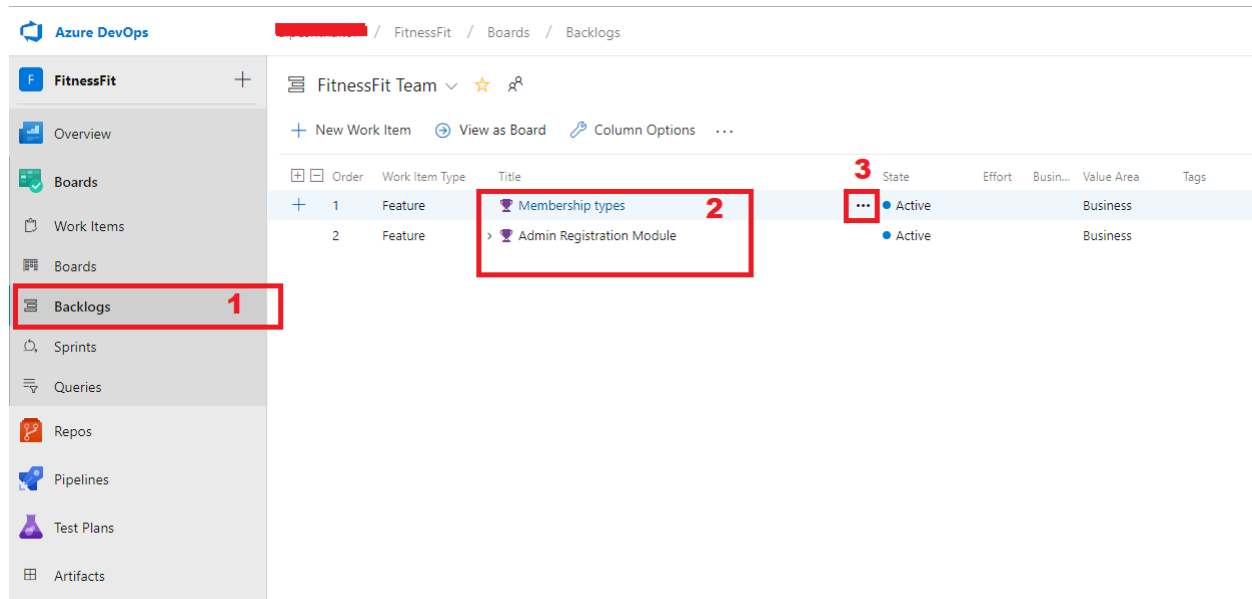
In every project's files, there must be a master copy, we can say that the master branch.



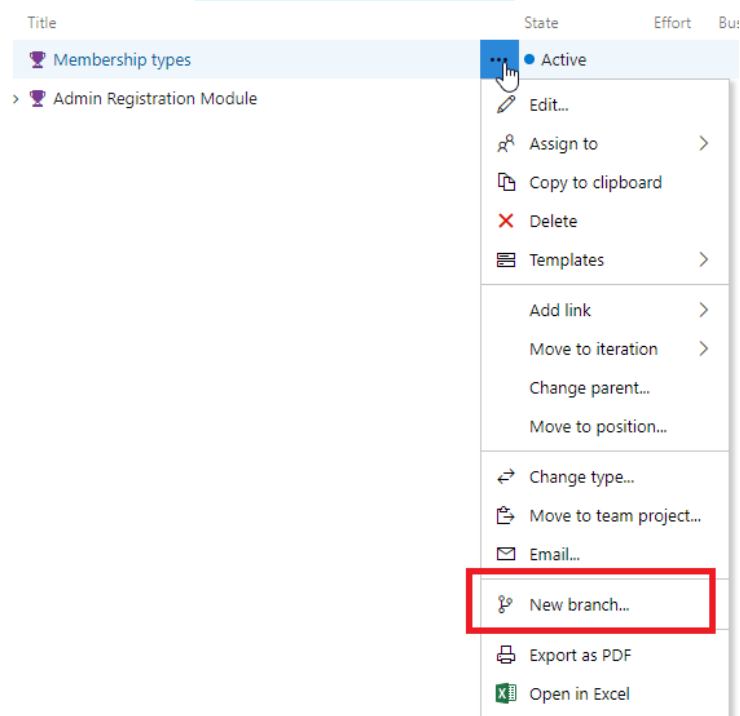
When team working on feature items, we can create a branch from the master branch that represents an independent line of development. Once the team complete the work, they can commit the changes to main or master branch, here in the above example the branch 'Awesome Footer Branch' are just pointers to the commits.

## Q8. How to create a branch from a work item with Azure Boards?

**Ans.** It is very easy to create a branch using Azure Boards, login into your Azure DevOps and navigate to Boards.



from the Backlogs select any feature and click on the options menu, and click on 'New Branch'



It will open a popup, where we have to specify the name of the branch, Based on Branch that is master branch and clicks on Create.

## Create a branch

Name

AdminReg

Based on

WebApplication3

master

Work items to link

Search work items by ID or title

1 AdminRegistration  
Updated just now, ● New

Create branch

Cancel

It will create a new feature branch and the team can work on that by just changing their code from IDE.

Branches							
Mine All Stale							
Branch		Commit	Author	Authored Date	Behind   Ahead	Status	Pull Request
AdminReg		4df77a16	Ankur	4/27/2019	0   0	×	
master	Default   Compare	4df77a16	Ankur	4/27/2019		×	

## Q9. What is commits in Azure Repos? When should you make Git commits?

**Ans.** When developers complete the code, to push that on the main repository they have to commit the changes as git does not automatically snapshot the changes. You have to tell which changes you want to add to the next snapshot by staging those changes. After that, you have to commit to save the changes to your repository.

Azure DevOps

WebApplication3 / Repos / Commits / WebApplication3

AdminReg WebApplication3 / Type to find a file or folder...

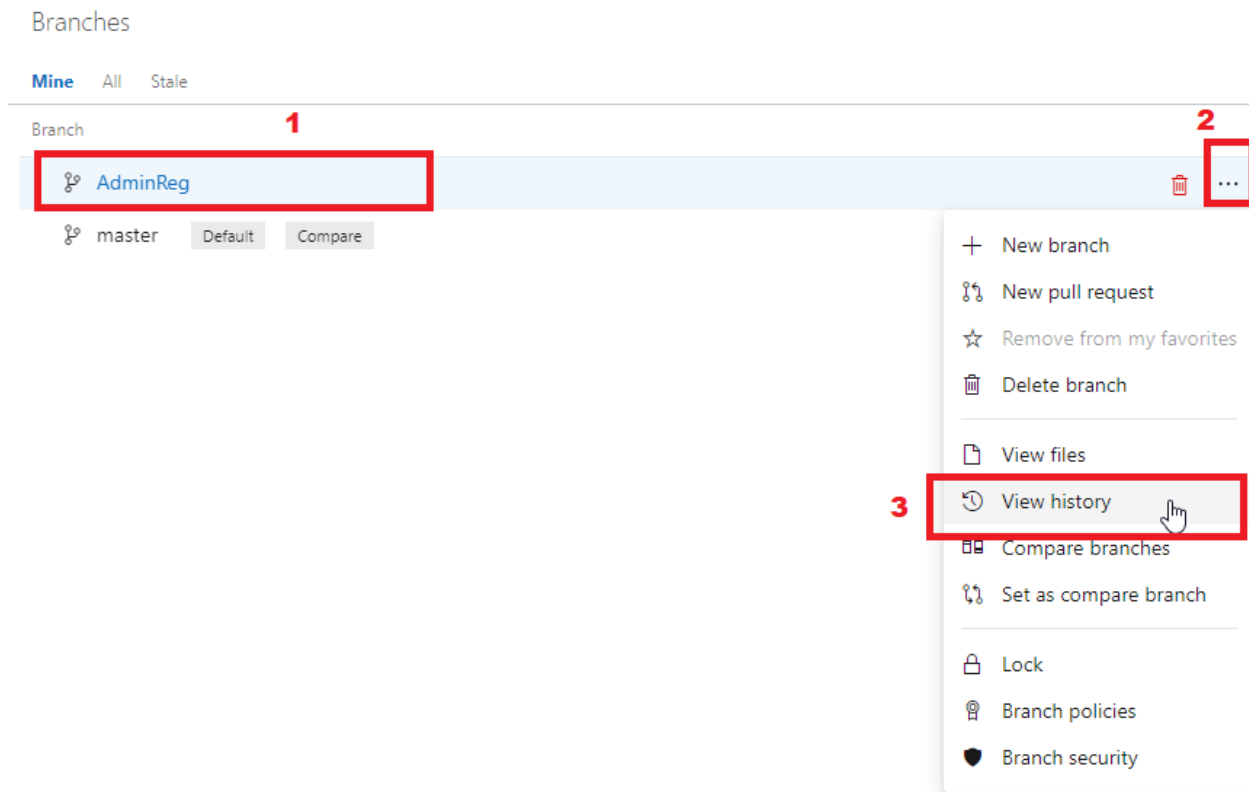
Simple history (...) Author From date To date Clear Filters

Graph	Commit	Message	Author	Authored Date
	4df77a16	commit	Ankur	4/27/2019 7:32 AM
	687b508c	First checkin	Ankur	4/26/2019 7:43 PM
	0fe2f063	Add project files.	Ankur	4/26/2019 7:06 PM
	15df6742	Add .gitignore and .gitattributes.	Ankur	4/26/2019 7:06 PM

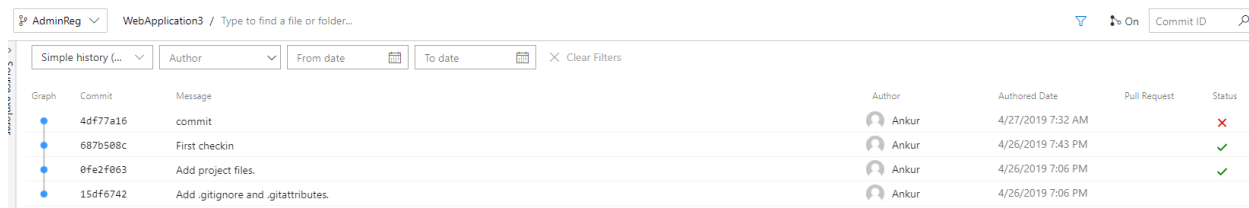
As you can see in the above picture, whenever developers make commits it will create a commit reference point with a unique id to track the changes.

## Q10. How to check Branch history in Azure Repos?

**Ans.** To check the branch history from the Repos, navigates to branches and select the branch for which you want to check the history.



Click on the options button and navigate to View history.

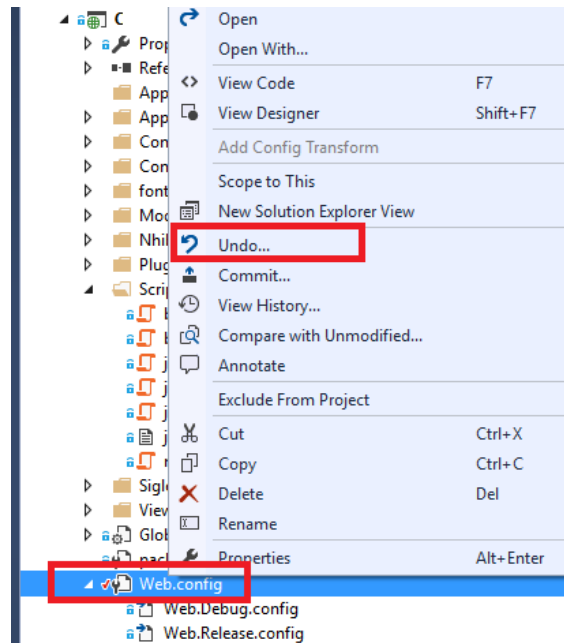


Here you can see all the changes and commits for the selected branch.

## Q11. How to rollback Git commit that has already been pushed?

**Ans.** To undo your changes there are 3 ways.

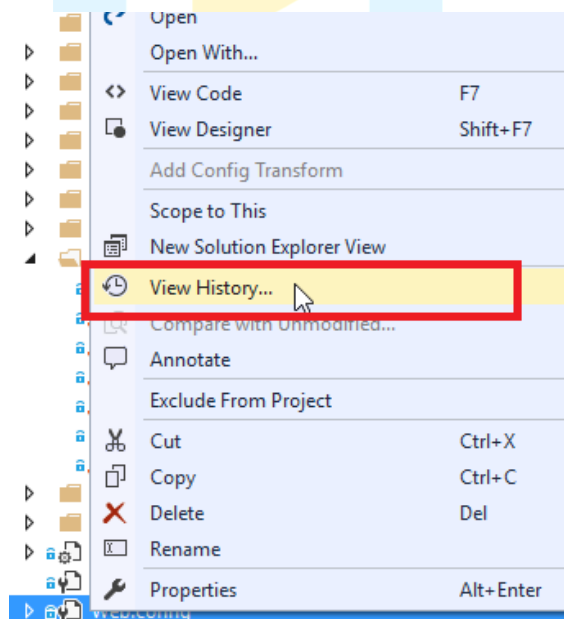
1. Discard uncommitted change from the file.



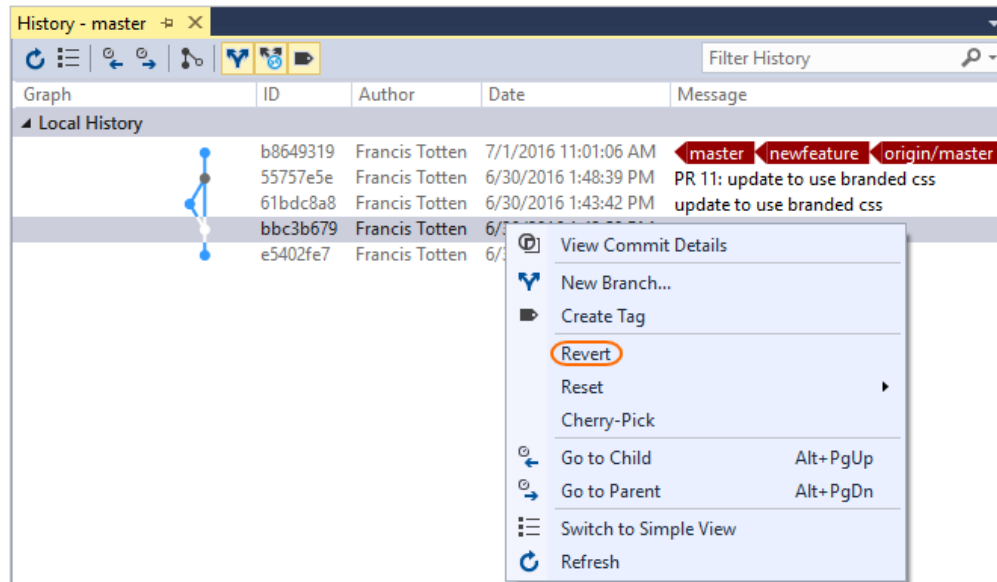
Right click on the file and click on undo to rollback changes.

## 2. Rollback changes in shared commits

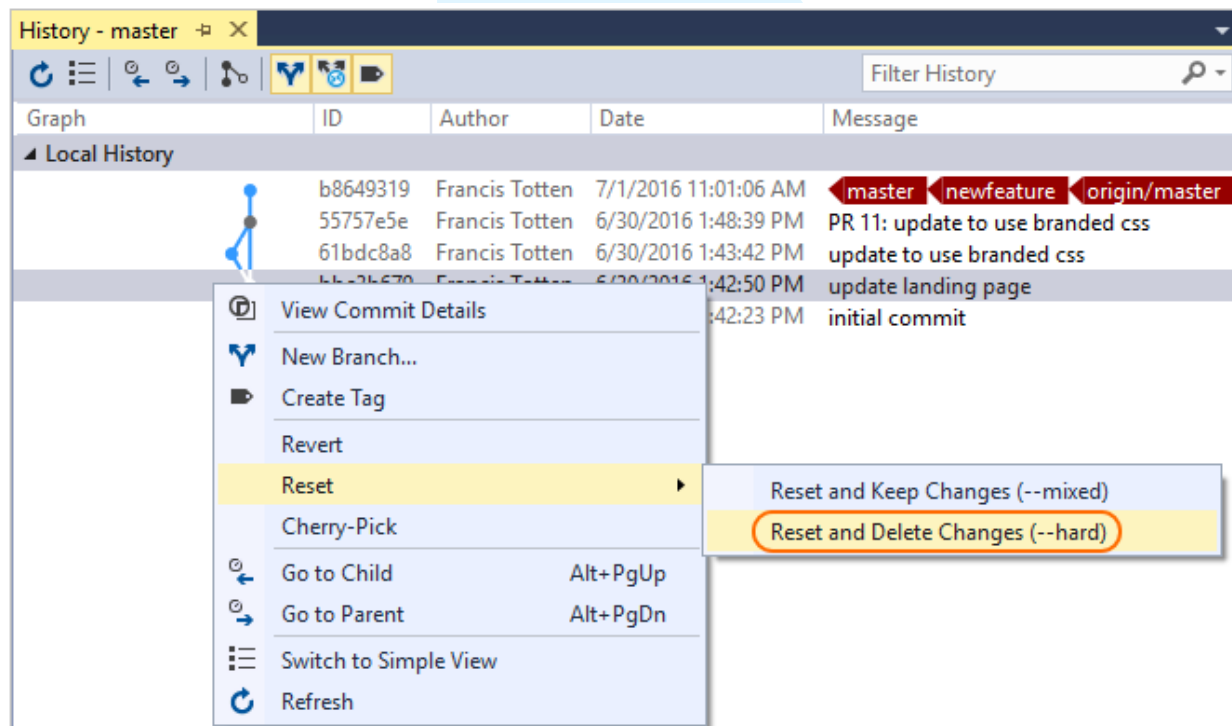
You can rollback changes in shared commits by right click on view history option as shown in below screen.



From the local history, just right click on the Commit Id and click on Revert to roll back the changes.



### 3. Reset the entire branch to a previous state.



To rollback entire branch to the previous branch, from the history windows right click on the commit and then click on reset and select 'Reset and Delete Changes'

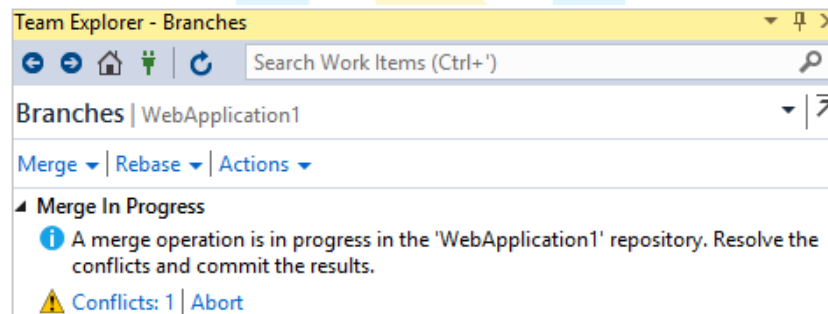
### Q12. Explain Git commands you use frequently.

**Ans.** Here are the Git commands which are being used frequently.

- git config: for setup the author name and email address to be used with your commits.
- git init: for init and start new repo
- git clone: for cloning project from an existing URL.
- git add: to add a file
- git commit: for commit changes and take a snapshot in the version history.
- git diff: for finding the difference between two files which not yet staged.
- git reset: for unstages the file, but it preserves the file contents.
- git status: for listing out all the files that have to be committed.
- git rm: for removing the file from your working directory and stages the deletion.
- git log: for checking version history of the current branch.
- git show: for checking the metadata and content changes of the specified commit.
- git branch: to finds all current branch in the current repo.
- git checkout: for switching branch
- git merge: to merge specified branch's history into the current branch.
- git remote: for fetches and merges changes on the remote server to your working folder.
- git push: push the committed changes of the main branch to your remote repository.
- git pull: for fetching and merging changes on the remote server to your working folder.

### Q13. Explain, how to resolve conflicts in Azure DevOps?

**Ans.** When you pull changes or merge two branches at that time if there is a conflict then the system will notify you about that and then you have to resolve those conflicts.



You can see a list of files and once you select any file it will show the 2 files, both source and target.

Based on your correction if you want to get changes from source branch or target branch you have to select Take target or Take Source. Use the checkboxes next to the lines modified to select between source and target changes entirely. Once done, click Accept Merge.



Team Explorer - Resolve Conflicts Merge - vctmp2866...05.app.b6a7bbbd.ts\*

Accept Merge

1 Conflicts (1 Remaining)

Source: FabriakamTypeScriptApp\app.ts;develop Target: FabriakamTypeScriptApp\app.ts;develop

```
1 class Greeter {
2   element: HTMLElement;
3   span: HTMLElement;
4   timerToken: number;
5
6   constructor(element: HTMLElement) {
7     this.element = element;
8     this.element.innerHTML += "The time is currently: ";
9     this.span = document.createElement('span');
10    this.element.appendChild(this.span);
11    this.span.innerText = new Date().toUTCString();
12  }
13
14  start() {
15    this.timerToken = setInterval(() => this.span.innerHTML += "The time is currently: ", 1000);
16  }
17
18  stop() {
19    clearInterval(this.timerToken);
20  }
21 }
```

Result: FabriakamTypeScriptApp\app.ts

TypeScript Virtual Projects Greeter

```
1 class Greeter {
2   element: HTMLElement;
3   span: HTMLElement;
4   timerToken: number;
5
6   constructor(element: HTMLElement) {
7     this.element = element;
8     this.element.innerHTML += "The time is currently: ";
9     this.span = document.createElement('span');
10    this.element.appendChild(this.span);
11    this.span.innerText = new Date().toUTCString();
12  }
13 }
```

Team Explorer - Resolve Conflicts Merge - vctmp2866...05.app.b6a7bbbd.ts\*

Accept Merge

1 Conflicts (0 Remaining)

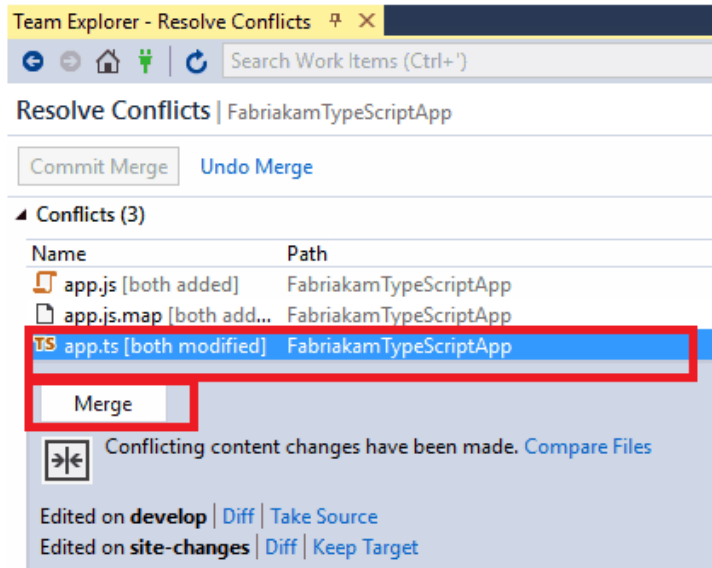
Source: FabriakamTypeScriptApp\app.ts;develop Target: FabriakamTypeScriptApp\app.ts;develop

```
1 class Greeter {
2   element: HTMLElement;
3   span: HTMLElement;
4   timerToken: number;
5
6   constructor(element: HTMLElement) {
7     this.element = element;
8     this.element.innerHTML += "The time is currently: ";
9     this.span = document.createElement('span');
10    this.element.appendChild(this.span);
11    this.span.innerText = new Date().toUTCString();
12  }
13
14  start() {
15    this.timerToken = setInterval(() => this.span.innerHTML += "The time is currently: ", 1000);
16  }
17
18  stop() {
19    clearInterval(this.timerToken);
20  }
21 }
```

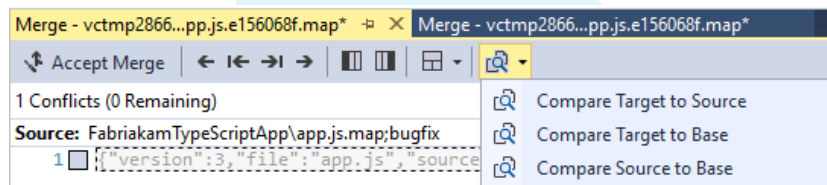
Result: FabriakamTypeScriptApp\app.ts

TypeScript Virtual Projects Greeter

```
1 class Greeter {
2   element: HTMLElement;
3   span: HTMLElement;
4   timerToken: number;
5
6   constructor(element: HTMLElement) {
7     this.element = element;
8     this.element.innerHTML += "The time is currently: ";
9     this.span = document.createElement('span');
10    this.element.appendChild(this.span);
11    this.span.innerText = new Date().toUTCString();
12  }
13 }
```

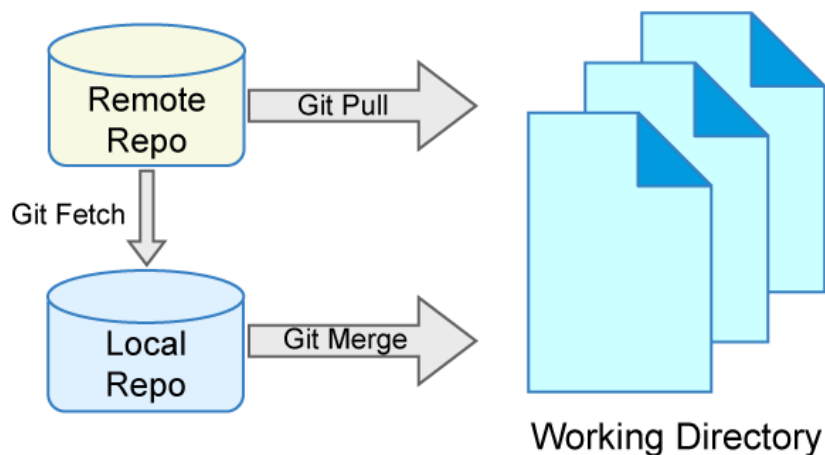


Compare the conflicting commits as well as the differences between the common history with the options in Visual Studio's merge tool.



#### Q14. What is the difference between git fetch, git pull and git merge?

**Ans.** Git Fetch: is used for downloading remote repository on a local repository.

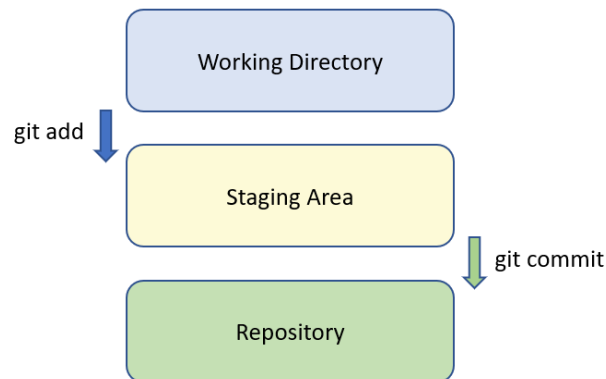


Git Pull: is used for fetch remote repository to the current working copy files

Git Merge: is used to merging local repository to the working directory.

### Q15. What is 'staging area' in Git?

**Ans.** Staging area or we can say index area is the area before the commit process.



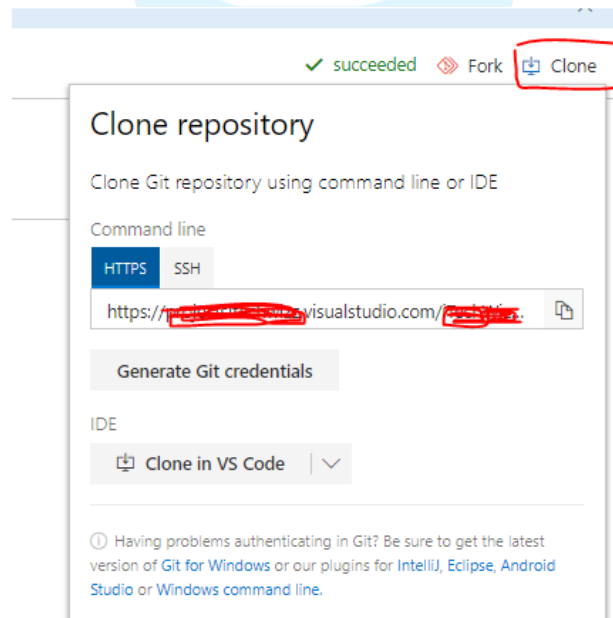
In git, it performed in two steps staging and actual commit.

### Q16. What are the Pull Requests?

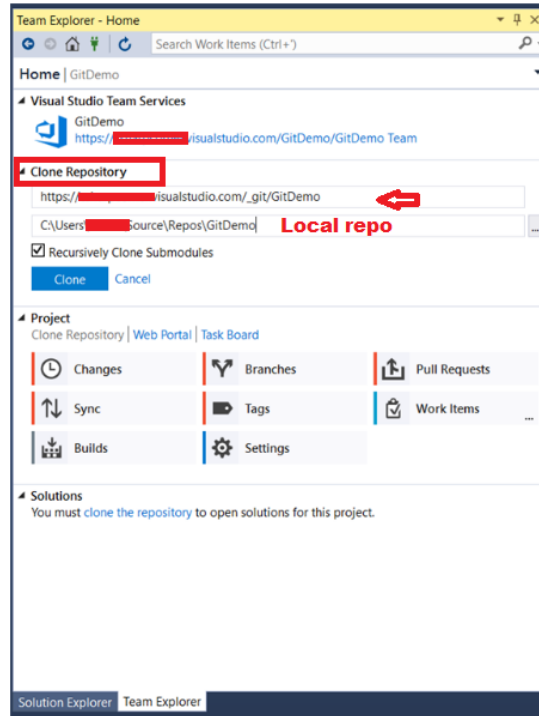
**Ans.** Pull request is useful when you want to tell other team members about your changes you've pushed to the repository. Once you send a pull request reviewer can review the set of changes, discuss potential change request and even push commits if all looks good.

### Q17. How to Clone an existing Git Repo in Azure Repos?

**Ans.** From Azure DevOps, navigates to Repos and Files. from the upper right corner, click Clone and from the pop-up, select and copy the URL.



from visual studio IDE, connect Team Explorer and then from the clone repository section paste the URL that you have copied from the Azure DevOps.



And then click on the Clone button to clone the project on your machine. That will clone a project copy into your system.

## Q18. What is Changesets in TFS?

**Ans.** It is a grouping of your code files that you're checking in to TFS or Azure DevOps using Team Foundation version control. So, working on one feature item and you have some features done you want to check-in code, that group of files that you are going to checked in is called changesets.

## Q19. What is Shelvesets in TFS?

**Ans.** Shelvesets means you are working on feature item and you want to keep the changes aside to work later you can make it Shelvesets so that changes are not available for a team member. It's kind of context switching for your code.

# 5

## Azure Pipelines

### Q1. What are Azure Pipelines?

**Ans.** Azure Pipelines are one of the key features for implementing DevOps, as It supports Continuous Integration (CI) and Continuous delivery (CD) using that we can automatically build and test your code projects.

That is useful for the constantly test and build your code and ship it to any target.

### Q2. How do you create a pipeline in Azure pipelines?

**Ans.** To create a pipeline, login into your DevOps organization account and then navigate to Pipelines. Choose the action to create a pipeline, you can choose to build a pipeline or release pipeline.

There are 4 steps to setup Continuous Integration Connect, Select, Configure and Review.

**Connect:** to connect with your code repo from git or GitHub.

**Select:** select your repository and branch you want to build.

**Configure:** there are lots of default templates available to achieve the tasks also you can set Configuration as code sing YAML.

Apply the appropriate templates and setup the agent and other configurations.

**Review:** to run the tasks and review the live progress and logs of all the activities.

To setup Continuous Deployment, navigate to release tab and set new release pipeline. Select the build artifacts and set the stages like Dev, UAT or production with appropriate templates that have all the tasks and agent for the deployment. Also, you can schedule the triggers the actions and tasks to automatically deploy the build on a particular stage server.

### Q3. Can we Setup .NET Project Build Using Jenkins?

**Ans.** Yes, we can set the .net project build using Jenkins.

### Q4. How to setup .NET Project Build Using Jenkins?

**Ans.** For that from the 2<sup>nd</sup> step that is select a template, look for the Jenkins and click on Apply.

## Select a template

Or start with an [Empty job](#)

functions.



### Azure Kubernetes Service

Build a container image, push it to the specified container registry. After image push is complete, package the Helm chart and publish it as an artifact.



### Azure Service Fabric application

Build and package an Azure Service Fabric application.



### Azure Service Fabric application with Docker support

Build and package an Azure Service Fabric application that contains Docker images to be pushed to a container registry.



### Azure Web App for Java

Build a Java WAR file and deploy it to an Azure Web App.



### Go (preview)

Build a Go application.



### Gradle

Build and test a Java project with Gradle.



### Jenkins

Queue a Jenkins job and download its artifacts.



### Load test using Azure IaaS virtual machines

Create a rig on Azure IaaS virtual machines to run load tests using VSTS cloud-based load testing service.



### Node.js With Grunt

Build a Node.js application using the Grunt task runner.



### Node.js With gulp

Build a Node.js application using the gulp task runner.

Configure the Jenkins service connection, agent pool, parameters and agents and then run the builds as shown in the below screen.

> Azure > Jenkins-Cl

Tasks Variables Triggers Options Retention History | Save & queue Discard Summary Queue

**Pipeline** Some settings need attention [View YAML](#)

**Get sources**  
Azure master

**Agent job 1**  
Run on agent

**Queue Jenkins Job:**  
Some settings need attention

**Download artifacts produced by**  
Some settings need attention

**Publish Artifact: drop**  
Publish Build Artifacts

Name \*  
Azure Jenkins-Cl

Agent pool \* [Pool information](#) | [Manage](#)  
Hosted Ubuntu 1604

Parameters [Unlink all](#)

Job name \*

This setting is required.

Jenkins service connection \* [Manage](#)

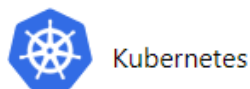
This setting is required.

+ New

## Q5. Which platform supported by Azure Pipelines?

**Ans.** Azure pipelines work with almost all the platforms like Windows, Linux, MacOS, Windows Virtual Machine, Kubernetes, and many.

It also works with any cloud platforms or app store like, AWS or GCP



## Q6. Which language supported by Azure Pipelines?

**Ans.** Azure pipelines work with almost all the languages like, C#, Java, PHP, Python, Ruby and Go.

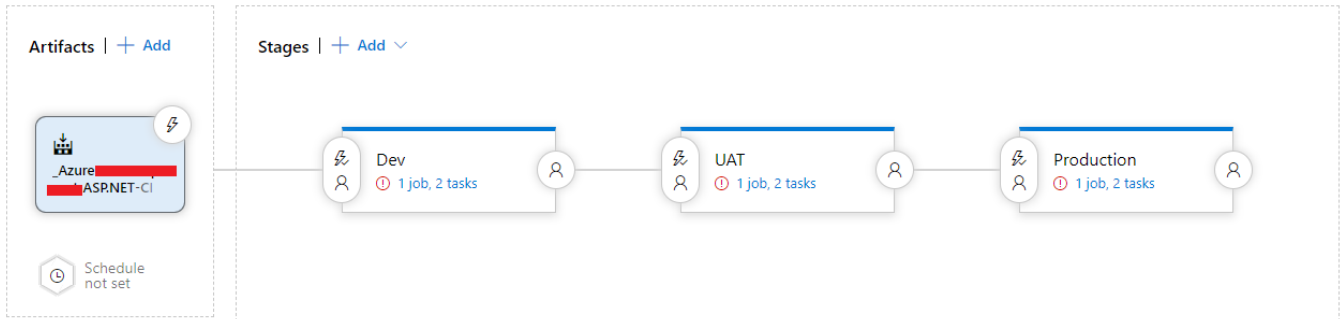
## Q7. What are the Benefits of YAML in Azure Pipelines?

**Ans.** You can setup the build and CI/CD Pipeline using YAML (Yet Another Markup Language) also. Using YAML team can easily access the same pipelines feature as they are in Azure DevOps visual designer.

The YAML file is just like a normal source file, and easy to manage by simply adding to the root repos.

## Q8. What are the Release pipelines?

**Ans.** Release pipelines mainly use for setup the deployment channel on the stage area or servers.



Once your build is ready, from the Release pipeline you can select that artifacts and set the stages like UAT or Production as per above screen.

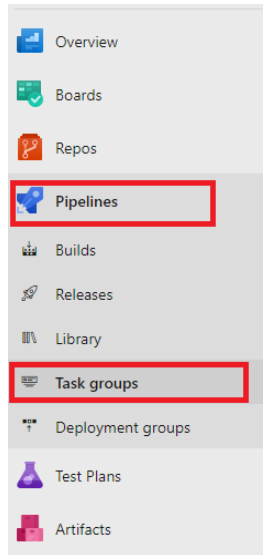
## Q9. What is Variable group and Library in Pipelines?

**Ans.** The variable group are the master copy of your variables that you want to share across the pipelines. Variable groups are defined in the Library tab of the Pipelines hub, where you have to define the name of the group and add all the common variables that you want to share across the pipelines.

## Q10. What is the use of Task group?

**Ans.** Task groups are useful for making common builds and release steps for your apps. Using that we can customize a group of tasks and we can use that as a template just like any other task.

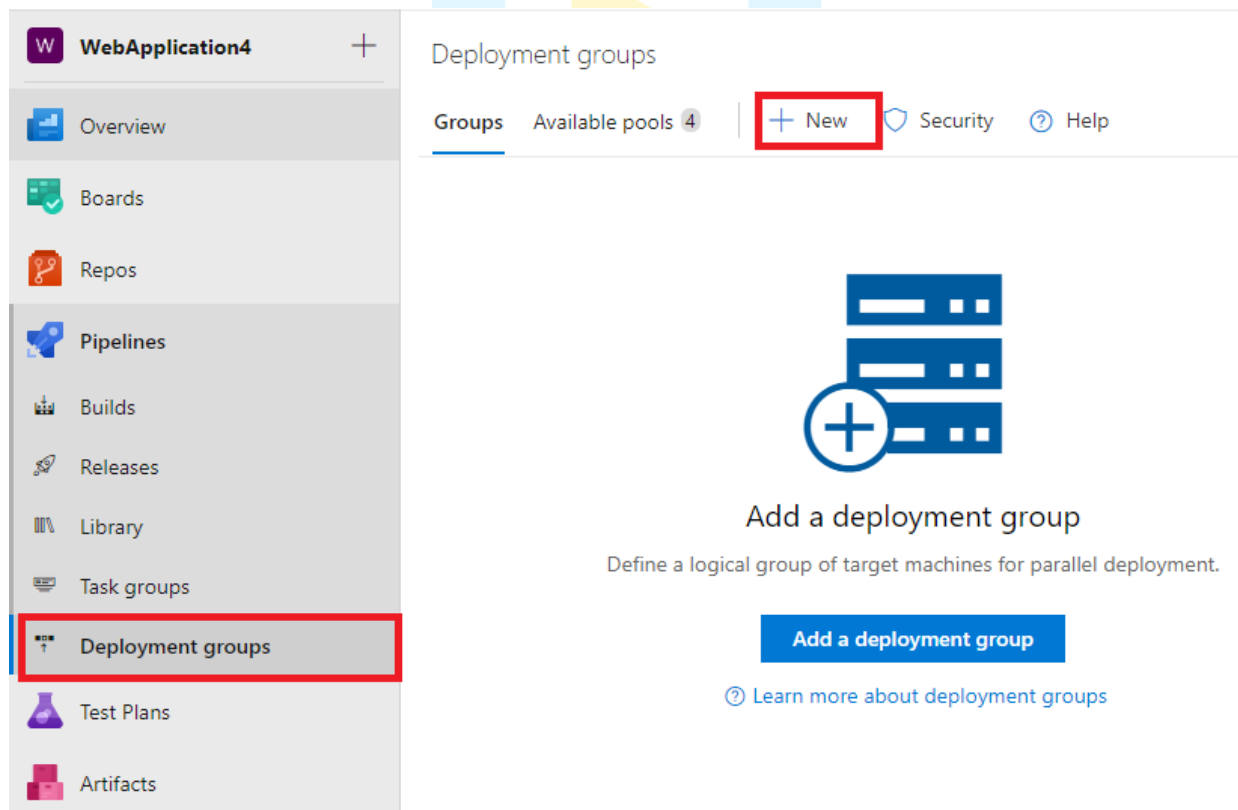




From the pipelines hub, you can navigate to Task groups to create and manage the new group.

## Q11. What is Deployment Groups?

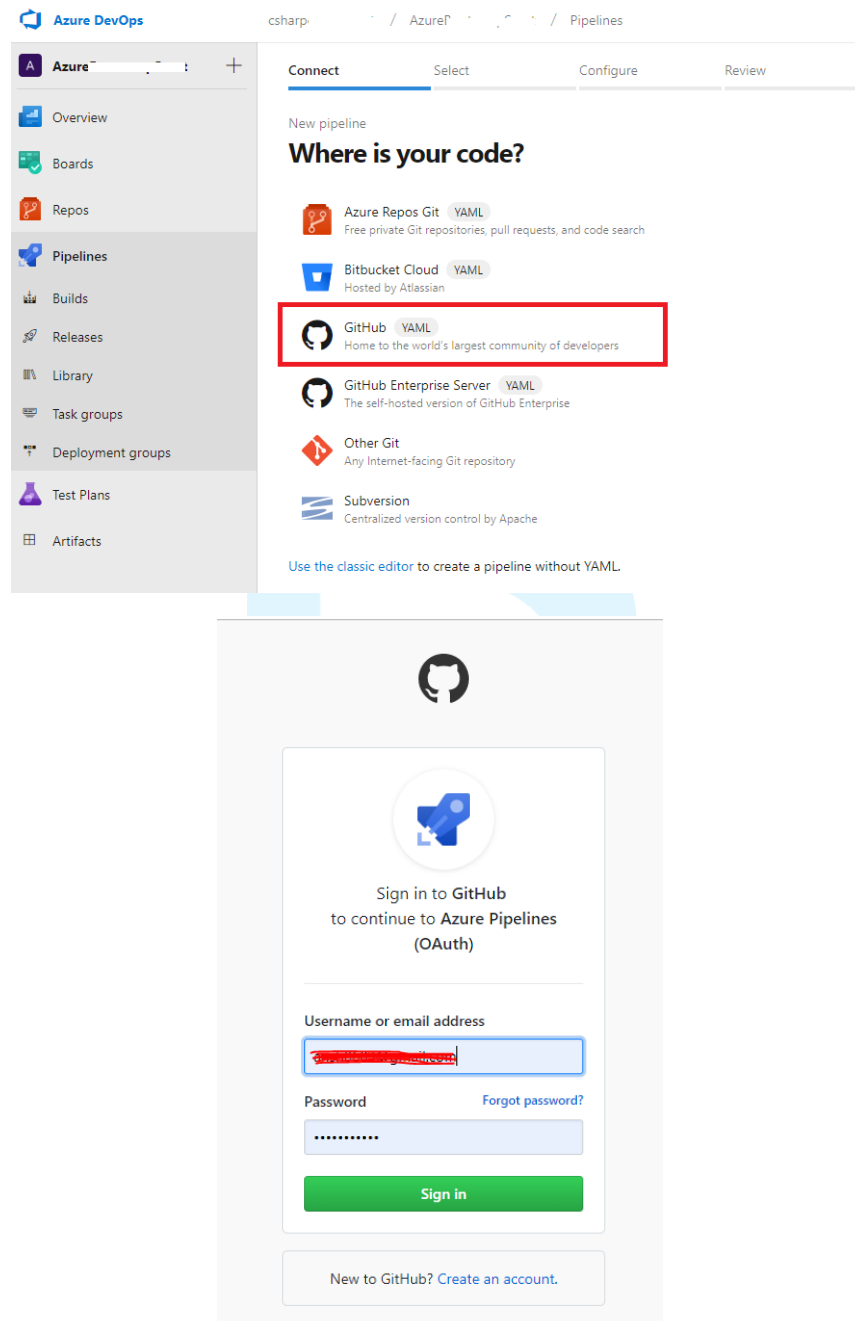
**Ans.** A deployment group is just another grouping of agents to achieve parallel deployment on different servers. Much like an agent pool It represents a different environment as Dev servers in one group, QA servers in one group and UAT servers in another group.



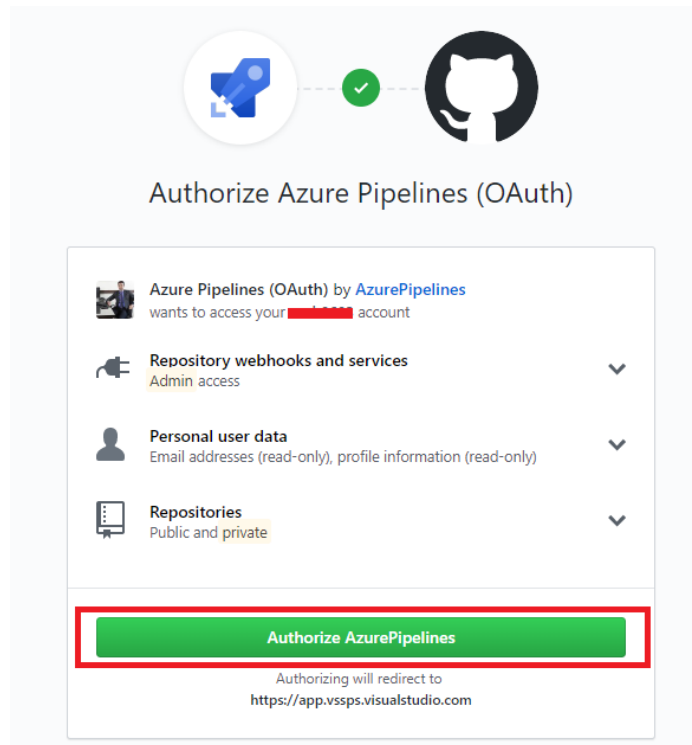
You can create a deployment group from the Deployment Groups option under the pipelines.

## Q12. Can we create pipelines for GitHub Projects using Azure Pipelines?

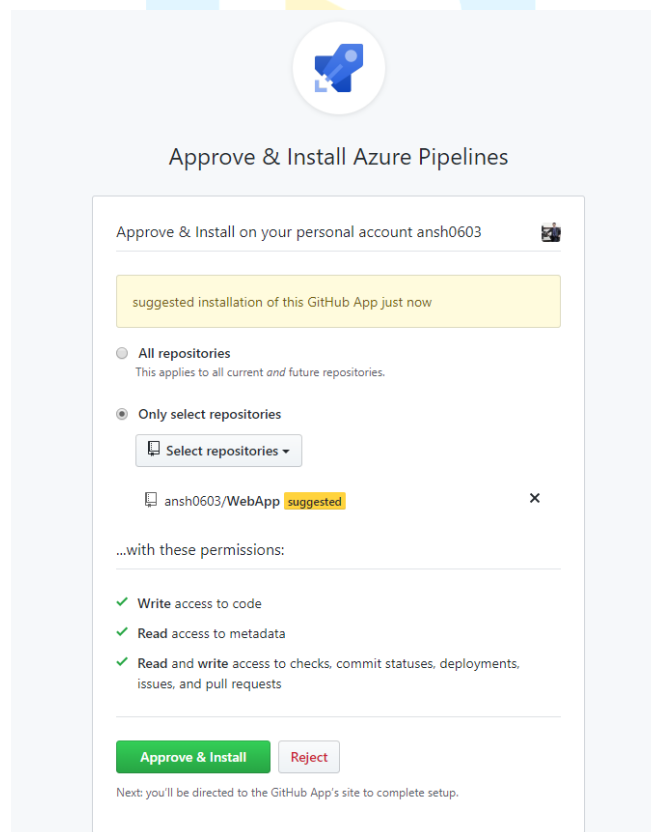
**Ans.** Yes, we can create a pipeline for GitHub projects using Azure Pipelines. From the Builds option connect for GitHub and enter GitHub credentials and repository information.



It will authorize the access of Azure Pipelines and ask for select a repo from GitHub



Select the repos and click on Approve & Install Azure Pipelines



It will configure your pipeline on Azure DevOps Account.



Select the template from the configure tab that best suits to your app. click on save and run to start the build.

### Q13. What is Agent? Can you explain the process of how the agent works?

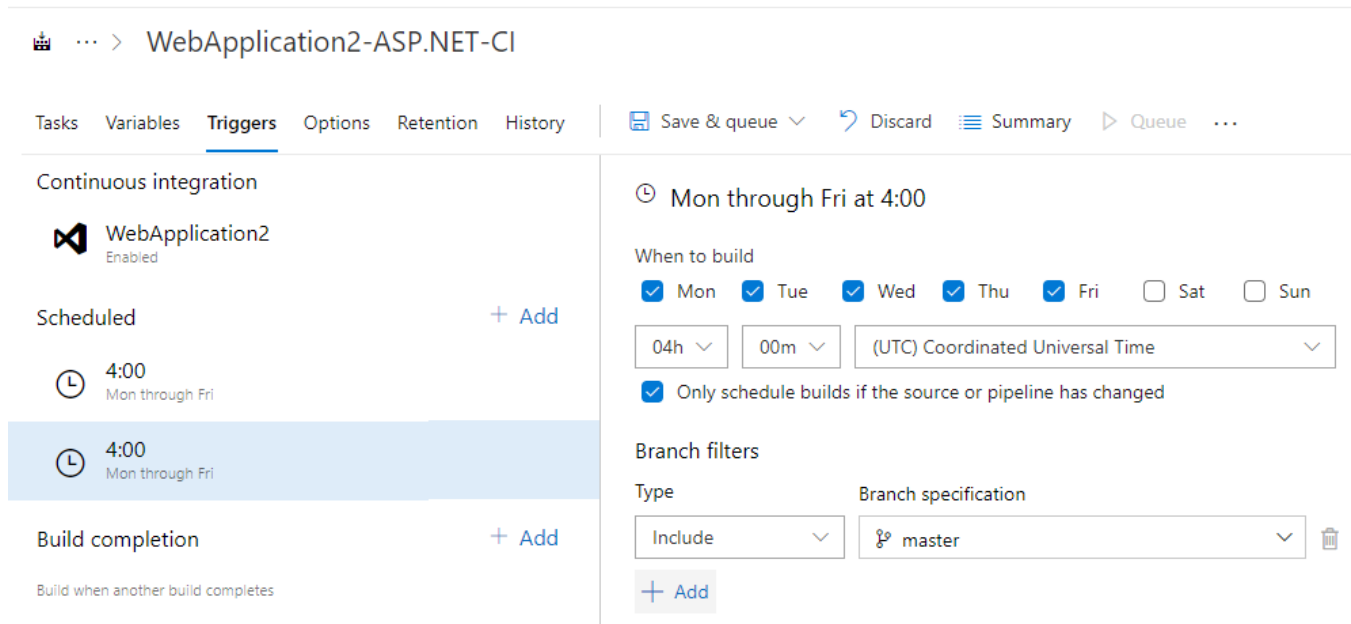
**Ans.** To deploy your software or apps or to build your code we need an agent. It is an installable software group that runs build/deployment jobs one at a time. There are Microsoft hosted agent and self-hosted agent.

### Q14. What is Job?

**Ans.** Job is a series of tasks that run one by one in the sequence on the same target machine. jobs may be run on the host or in a container.

### Q15. What is Trigger in Pipelines, what are the different way to execute the Trigger?

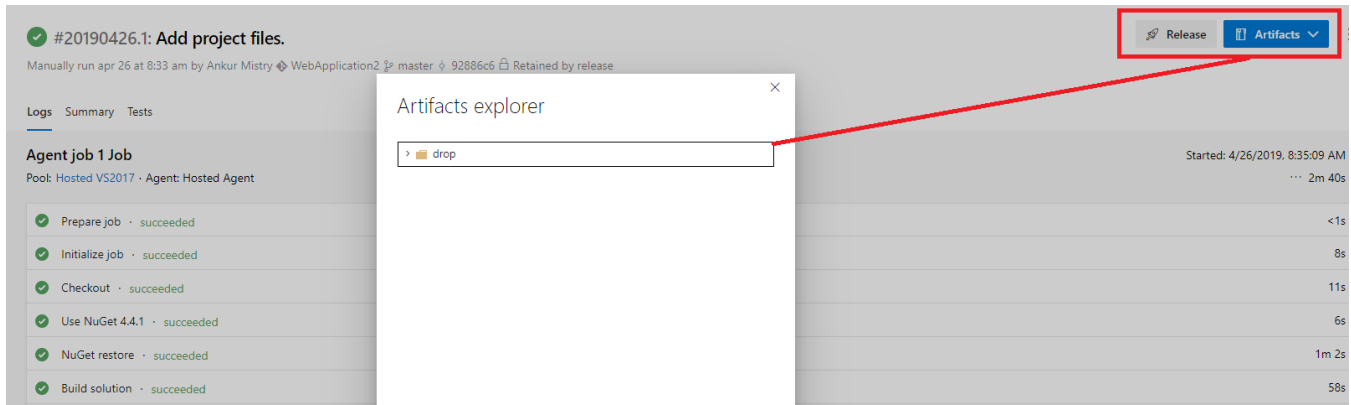
**Ans.** To set the Continuous Integration and build event, we can use the trigger option to control and schedule the builds. Basically, we can automate build by scheduling it on a specific time.



Either we can do that manually, or we can set a particular day and time or we can automate it on every check-in.

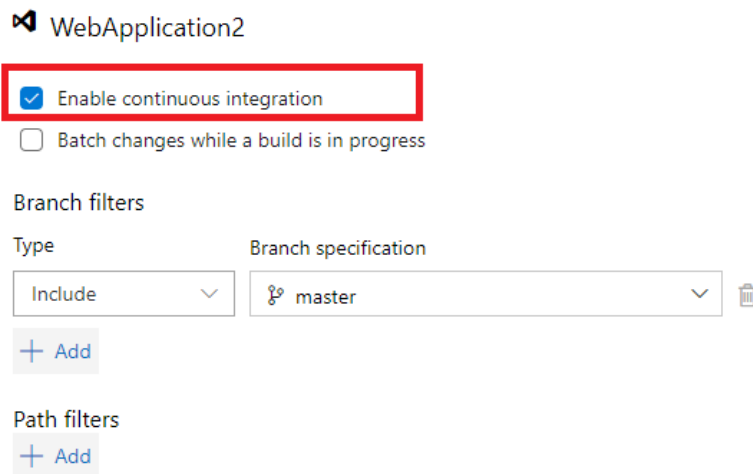
## Q16. What is Build Artifacts?

**Ans.** Artifacts are the files that we need to make or produce our builds. Build artifacts are the files that we need to deploy apps.



## Q17. Explain the steps to enable Continuous Integration from Code check-in?

**Ans.** To enable CI on every Check-in you have to check 'Enable continuous Integration'. From Triggers option inside build pipelines as shown in below screen.



## Q18. Can you explain the retention policy in Azure Pipelines?

**Ans.** Using Retention policy, we can set how many days we need the last builds and files so we can rollback if needed. By setting the retention policy we can automate delete unwanted builds and files for a particular branch.

WebApplication2-ASP.NET-CI

Tasks Variables Triggers Options **Retention** History | Save & queue Discard Summary Queue ...

Policies [+ Add](#)

Policies are evaluated in order, applying the first matching policy to each build. The default rule at the bottom matches all builds.

- Keep for 10 days, 1 good build  
~refs/heads/\*
- Keep for 30 days, 10 good builds  
Maximum

Settings

Branch filters

Type: Include Branch specification: \*/\*

+ Add

Days to keep: 10 Minimum to keep: 1

When cleaning up builds, delete the following:

- ☒ Build record
- ☐ Source label
- ☒ File share
- ☒ Symbols
- ☒ Automated test results

**Q19.** Can I deploy my Artifacts same time on different stages like Dev, Staging or Production?

**Ans.** Yes, you can deploy Artifacts same time on different stages by setting up Number of parallel deployments.

Stages | [+ Add](#)

QA  
2 jobs, 2 tasks

Deployment queue settings ^  
Define behavior when multiple releases are queued for deployment

Number of parallel deployments ①  
☒ Specific ☐ Unlimited

Maximum number of parallel deployments  
5

Subsequent releases  
☒ Deploy all in sequence  
☐ Deploy latest and cancel the others

## Q20. Can we automatically deploy database updates to Azure SQL database after every successful build?

**Ans.** Yes, we can do that and for that, we have a task in azure DevOps to migrate SQL DB in the release pipeline. From Agent, Job task clicks on add tasks and look for SQL. Azure DevOps supports many database scripting tools you can select the best suits for your job.

The screenshot displays the Azure DevOps 'Add tasks' interface. At the top, there are tabs for 'Tasks', 'Variables', 'Triggers', 'Options', 'Retention', and 'History'. Below these, a 'Pipeline' section shows 'Build pipeline' with a 'Get sources' task for 'WebApplication2' on the 'master' branch. Under 'Agent job 1', a list of tasks is shown: 'Use NuGet 4.4.1', 'NuGet restore', 'Build solution', 'Test Assemblies', 'Publish symbols path', and 'Publish Artifact'. A red box highlights a '+' icon to the right of 'Agent job 1'. Below this, a search bar contains the text 'sql'. The search results list several tasks, with 'Azure SQL Database Deployment' and 'Run SQL Server Scripts Task' highlighted by red boxes. Other tasks include 'Azure Database for MySQL Deployment', 'SQL Change Automation: Build', 'SQL Toolkit', 'SQL Change Automation: Release', and 'SQL Server Reporting Services Deployment'.

Tasks Variables Triggers Options Retention History | Save & queue

Pipeline  
Build pipeline

Get sources  
WebApplication2 master

Agent job 1  
Run on agent

- Use NuGet 4.4.1  
NuGet Tool Installer
- NuGet restore  
NuGet
- Build solution  
Visual Studio Build
- Test Assemblies  
Visual Studio Test
- Publish symbols path  
Index Sources & Publish Symbols
- Publish Artifact  
Publish Build Artifacts

Add tasks | Refresh

sql

Azure Database for MySQL Deployment  
Run your scripts and make changes to your Azure Database for MySQL

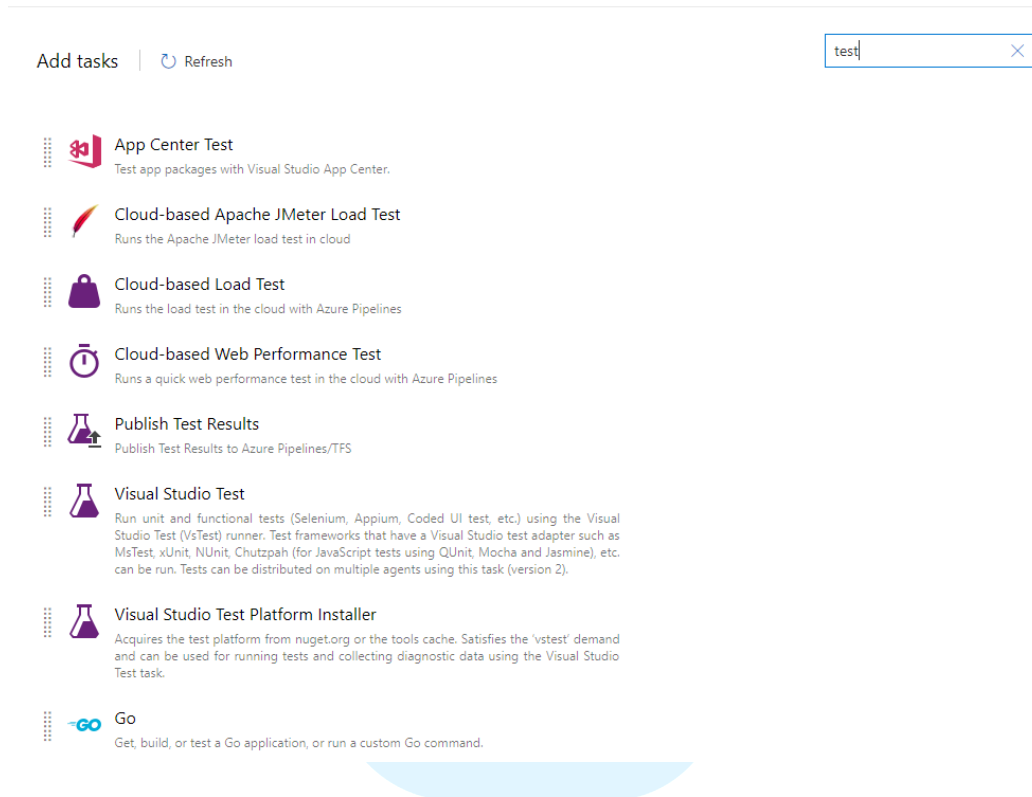
Azure SQL Database Deployment  
Deploy Azure SQL DB using DACPAC or run scripts using SQLCMD

Marketplace

- SQL Change Automation: Build  
Build and test databases with Redgate SQL Change Automation
- SQL Toolkit  
SQL Toolkit for on premises TFS
- SQL Change Automation: Release  
Safely deploy databases with Redgate SQL Change Automation
- Run SQL Server Scripts Task  
Run SQL Server Scripts Task for TS and TFS
- SQL Server Reporting Services Deployment  
Contains a task for deploying Report Files to SQL Server Reporting Services

## Q21. What are the typical types of tests I can run to validate my app and deployment?

**Ans.** We can do the Smoke test, sanity test, User Acceptance to test to validate my app and deployment. We can also do regression testing if we have more time. You can add QA tasks from your builds to check and validate deployment.





# 6

## Azure Test Plans

### Q1. What are Azure Test Plans?

**Ans.** Azure Test Plans is the hub for all your testing and quality assurance activities. It has tools for testing your apps, create and run manual test plans, test suits, generate automated tests and script executions.

### Q2. What are the test cases? How to add a test case in Azure test plans?

**Ans.** A test case is useful for validating individual part of your module or user requirement. We write test cases to make sure that work item works correctly and there are no bug or defects and it meets the business needs of the client. We can say that it is an acceptance criterion of a work item.

### Q3. What is the use of the test suite?

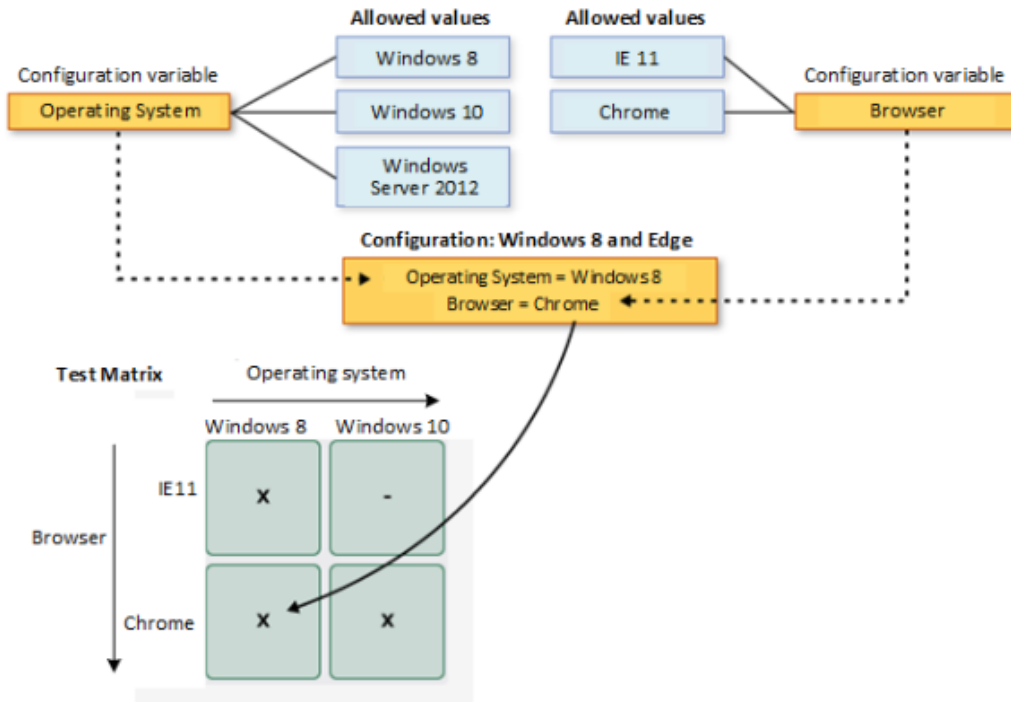
**Ans.** For particular requirement we have to write test cases to check and validate the modules, the group of test cases is called test suite. So, we can group test cases of a particular scenario of the user requirement and easily manage which scenario has been completed.

### Q4. What is Parameter sets?

**Ans.** Parameters are the shared variable set, which has value and properties. While doing manual testing many times, we have to supply values like size, quantity, repetition etc. We can manage that by creating one-time parameter sets in Azure Test Plans and use that while running test.

### Q5. What are the test configurations? And what is Configuration valuable?

**Ans.** Using test configuration, we can setup platform such as operating system, web browsers and other variations. We can choose and provides configurations to check particular test plans and scenario.



## Q6. How to create a test plan and test cases in Azure DevOps?

**Ans.** To create a test plan first navigates to Test Plans and then click on New Test Plan, then enter the name you want to give for your test plan.

### Test Plans

Mine All [+ New Test Plan](#)

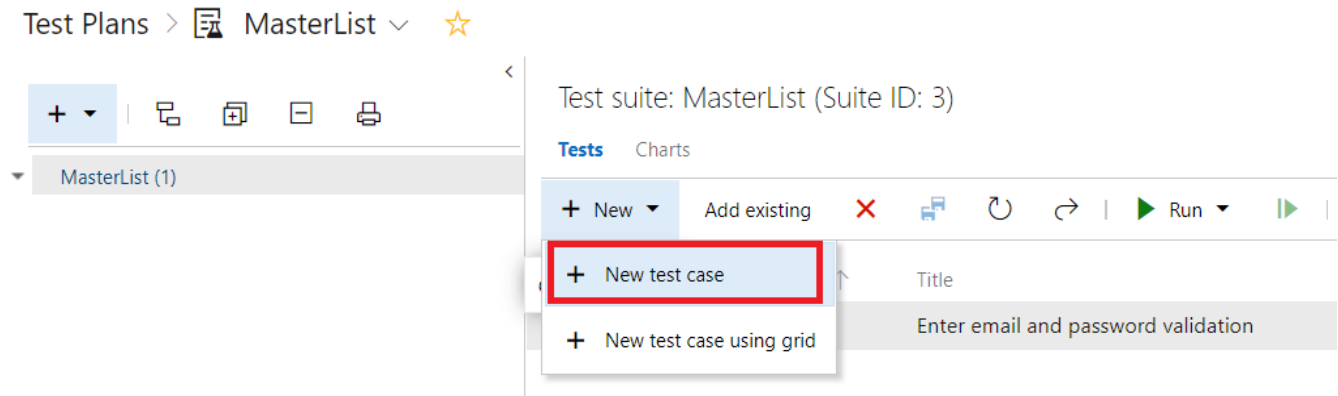
Title	State
-------	-------

▼ My Favorites

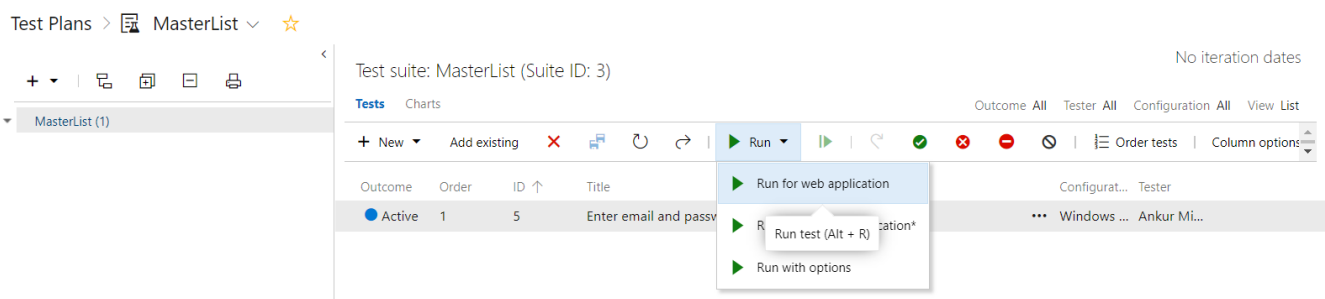
No favorites yet! Favorite ★ a test plan to quickly access it here

> WebApplication2 Team

We can create a test case inside the test plan so for creating a test plan, select the test plan and then click on the new test case. Enter the details of your test case and save it.



You can check and run the case from the top action button as shown in below screen.



## Q7. What are the benefits of a Test Plan?

**Ans.** Using the Test plan, we can make sure of the quality of the product, by analyzing the product features.

Other benefits of test plans are we can define the scope, develop a strategy of the test, develop a schedule, identify the risk and define roles and responsibilities.

## Q8. What are Test and Feedback tools?

**Ans.** Test and feedback tool are the browser extension to provide feedback on particular work items. For example, the team has completed one feature and you want to ask stakeholder to test and give feedback, using test and feedback tool you can request them to provide feedback on the particular work item.

## Q9. What are the main features of Test and Feedback tools?

**Ans.** The main features of the test and feedback tool are to capture images while doing Exploratory Testing, you can take notes, screenshots with annotations, and screen recordings to capture issues.

**1** **2** **3**

**New bug** X

Incorrect promo price |

Include: ☒ Image action log ☒ Page load data

**Observations**

<https://www.microsoft.com/surface/en-us/devices/surface-book>  
@ 2:52:45 PM

**5** 1810 ms.

PreRequest Latency Response DomLoading DomComplete Load

**4** • Click on link 'See more'.

See more...

• Click on 'Windows Apps'

Save

You can directly create an issue or bug in Azure Boards using the tool, that save lots of time of passing the information to team so team collaboration makes easy using the tool.

# 7

## Artifacts

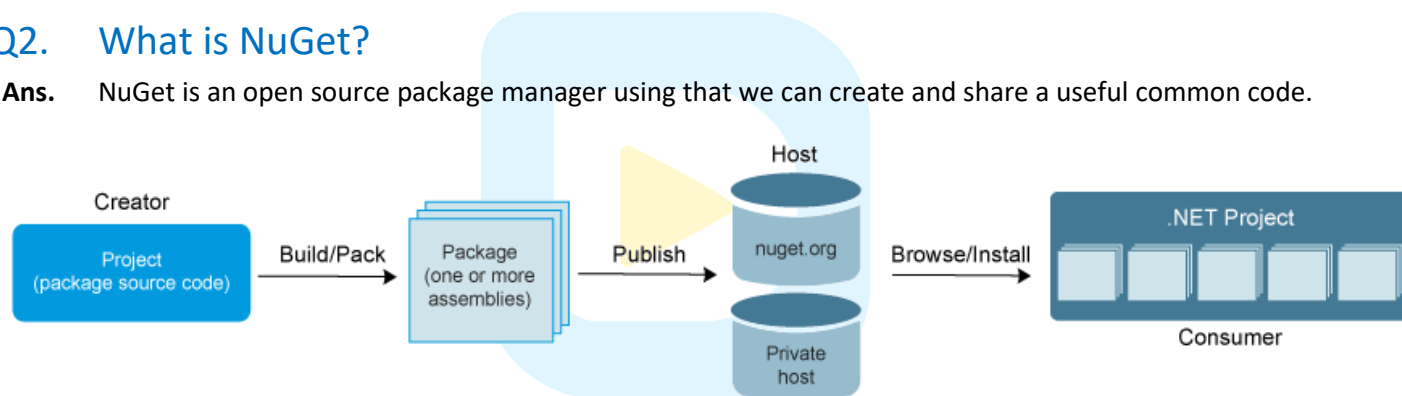
### Q1. What are Azure Artifacts?

**Ans.** Artifacts is a group of packages or say extension, using Azure Artifacts we can create, host and share packages with teams.

We can share code across teams, and manage all package types like npm, Marven, NuGet, Gradle etc.

### Q2. What is NuGet?

**Ans.** NuGet is an open source package manager using that we can create and share a useful common code.



Often these codes are bundled into packages that have compiled the code with content needed in the projects that consume these packages.

### Q3. What are Upstream Sources?

**Ans.** Using Upstream sources, we can store both the package you consume and the package you produce.

To use packages from a public source or VSTS feeds we add upstream source in Artifacts section.

### Q4. Which Packages support is available in Azure DevOps Artifacts?

**Ans.** Azure DevOps Artifacts supports NuGet, Marven, npm and NuGet.org upstream source.

Following are the feature and its support chart in Azure DevOps and old TFS.

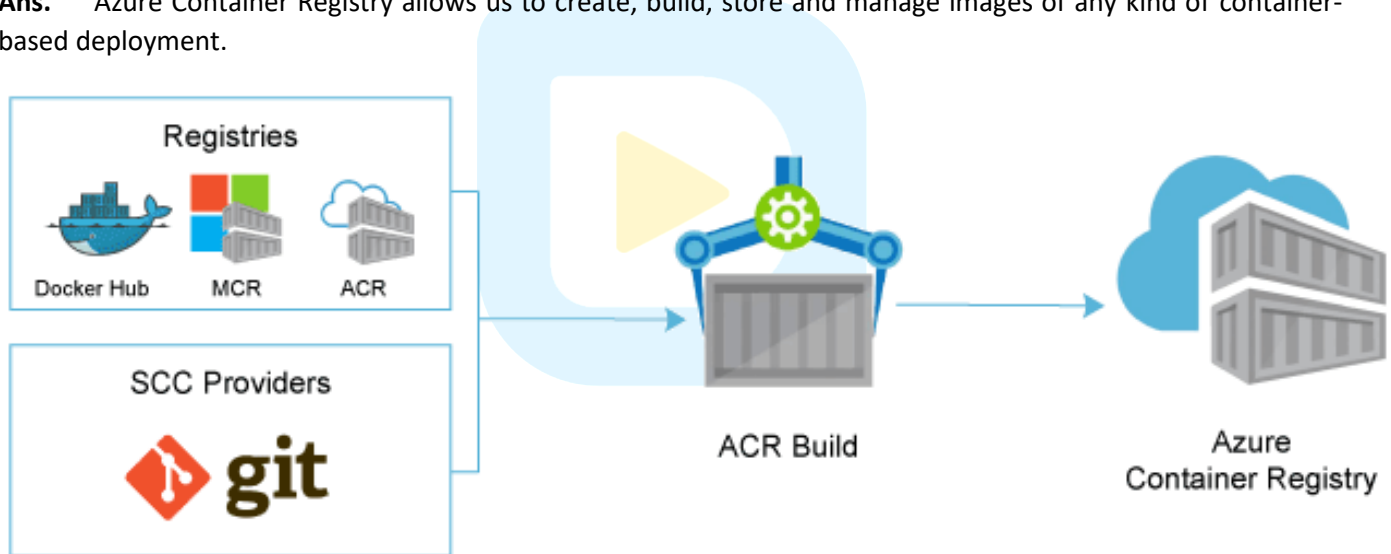
Feature	Azure DevOps Services	TFS
NuGet	Yes	TFS 2017
npm	Yes	TFS 2017 Update 1 and newer
NuGet.org upstream source	Yes	TFS 2018 Update 2 and newer
Maven	Yes	TFS 2018

### Q5. What are Universal Packages?

**Ans.** Universal packages are a collection of files with name and version. They are stored in the feed section of the Artifacts hub.

### Q6. What is Azure Container Registry?

**Ans.** Azure Container Registry allows us to create, build, store and manage images of any kind of container-based deployment.



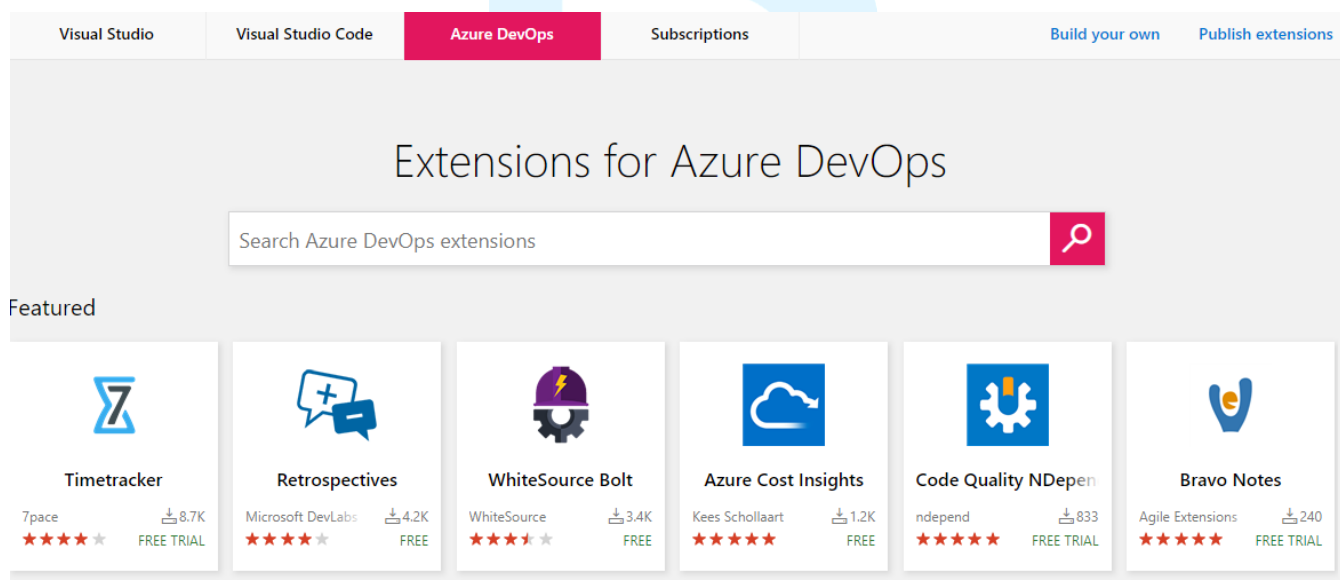
# Extensions & Marketplace

## Q1. What is Azure DevOps Extension?

**Ans.** Extensions are the small programs or we can say plugins to customize and extend the DevOps features. It is written in simple development languages and rest API and easily available from Marketplace.

## Q2. What is Marketplace?

**Ans.** The marketplace is the hub for all the Azure DevOps Extensions. Just like app stores. You can search and browse plugins, read the description, ratings and uses and easily add in your Azure DevOps Services account.

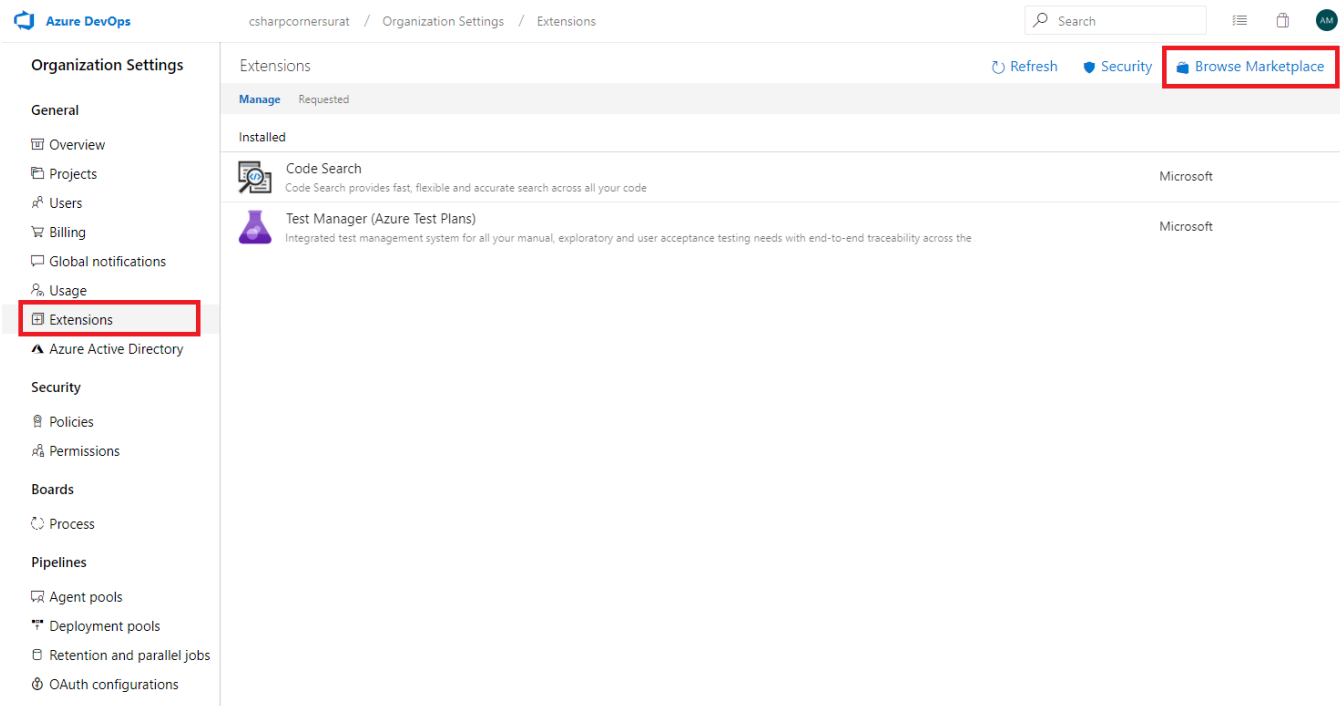


## Q3. What are the different types of extensions?

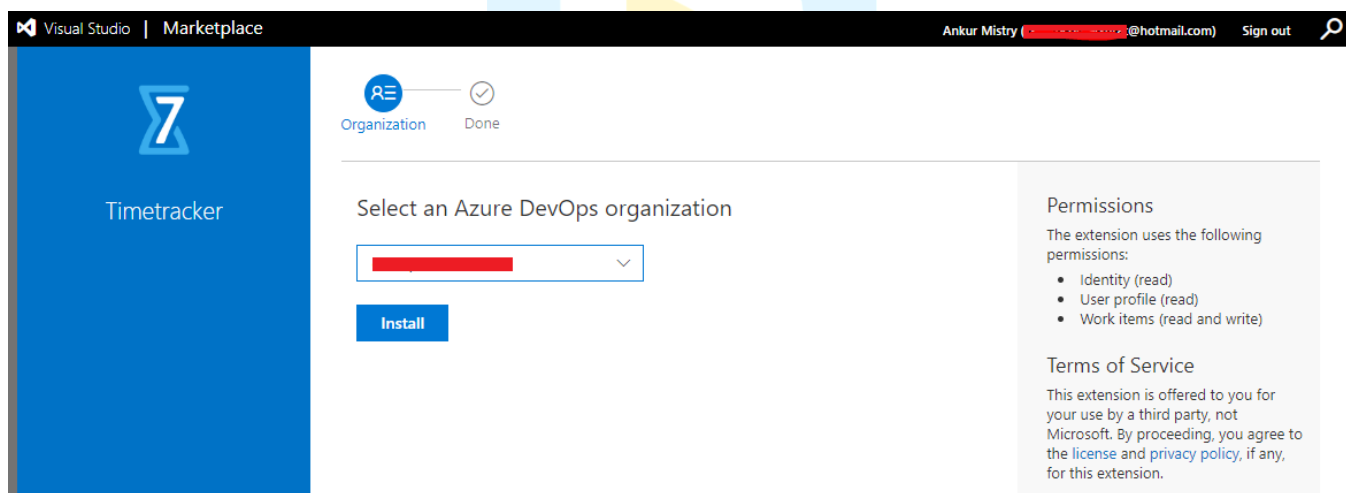
**Ans.** There are private and public extensions available on Azure DevOps Marketplace, some are free and some are paid one. Also, some extensions are browser-based and some are directly available inside Azure DevOps.

## Q4. How to install extensions for Azure DevOps Services?

**Ans.** You can Install Extension from Organization Settings – Extension tab. Click on Browse Marketplace to find and install the extension just shown in below screen.



Once you find the Extension, select the Azure DevOps service account and just click on install and follow the installation instruction.





# References

This book has been written by referring to the following sites:

1. <https://docs.microsoft.com/en-us/azure/devops/?view=azure-devops> - Microsoft Azure DevOps Docs
2. <https://www.dotnettricks.com/learn/devops> - Dot Net Tricks DevOps

