

DevOps Project Report

Title: Build and deploy a YouTube Clone Using Azure DevOps Pipelines

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▪ Abstract:

This project demonstrates the automation of building, testing, and deploying a YouTube Clone web application using Azure DevOps Pipelines. It covers the full Continuous Integration and Continuous Deployment (CI/CD) lifecycle. The pipeline is triggered automatically whenever changes are pushed to the GitHub repository, ensuring smooth and consistent deployment.

Key highlights:

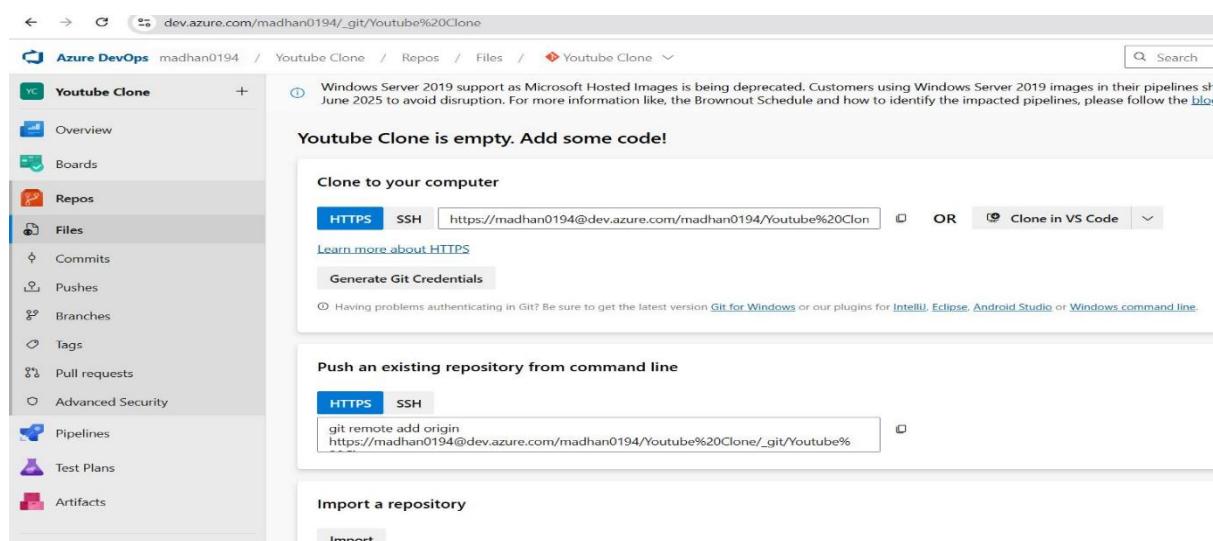
- Automates build, test, and deployment stages using Azure DevOps.
- Integrates with GitHub for version control and CI triggers.
- Deploys the app to Azure App Service (Web App for Linux).
- Uses best practices like artifact publishing and deployment slots.

This project is ideal for students and developers learning about real-world DevOps practices using Microsoft Azure.

Step-by-Step Execution Summary:

Step 1: Cloned a YouTube Clone Repository from GitHub

- Started by finding a working YouTube Clone frontend project from GitHub.
- Downloaded or cloned the project to local system for setup.



Step 2: Pushed the Project into Azure DevOps Repo

- Created a new repository in Azure DevOps.
- Pushed the cloned YouTube Clone project into this Azure DevOps repository using Git commands.

The screenshot shows the Azure DevOps interface for the 'Youtube Clone' repository. The left sidebar lists various project management sections like Overview, Boards, Repos, Files, Commits, Pushes, Branches, Tags, Pull requests, Advanced Security, Pipelines, Test Plans, and Artifacts. The 'Repos' section is currently selected. The main area displays the repository structure under 'main': 'public', 'src', '.env', '.gitignore', 'azure-pipelines.yml', 'package-lock.json', 'package.json', and 'README.md'. A message at the top right indicates that Windows Server 2019 support is being deprecated. The commit history table shows the following details:

Name	Last change	Commits
public	7 Aug 2022	5ac87459 ... adrianhajdin
src	26 Aug 2022	26188d7e ... adrianhajdin
.env	21 Nov 2023	8c78c8d6 Rename .env.example to .env piyush sach...
.gitignore	3 Aug 2022	18d26f36 initial commit adrianhajdin
azure-pipelines.yml	Yesterday	f17f08df Set up CI with Azure Pipelines V MADH...
package-lock.json	7 Aug 2022	2d852e91 ... adrianhajdin
package.json	7 Aug 2022	2d852e91 ... adrianhajdin
README.md	19 Nov 2023	5488572f Update README.md piyush sachdeva

Step 3: Set Up Azure DevOps Project

- Created a new project inside Azure DevOps Portal.
- Linked the newly created Azure DevOps repo to the project.

Step 4: Created Azure App Service

- In the Azure Portal, created an App Service with the following settings:
 - Web App on Linux
 - Runtime Stack: Node.js 18 LTS
 - Chose region and created a resource group

The screenshot shows the Microsoft Web App service deployment page for the deployment 'Microsoft.Web-WebApp-Portal-2cff32b6-a4c2'. The top navigation bar includes 'Search', 'Delete', 'Cancel', 'Redeploy', 'Download', and 'Refresh'. The main message is 'Your deployment is complete' with a green checkmark icon. Deployment details are listed:

- Deployment name : Microsoft.Web-WebApp-Portal-2cff32b6-a4c2
- Subscription : Azure for Students
- Resource group : devops
- Start time : 5/31/2025, 10:26:35 PM
- Correlation ID : ebba9407-16cf-4a53-aebc-4256dff66c0a

Below this, there are two expandable sections: 'Deployment details' and 'Next steps'. A blue button labeled 'Go to resource' is located at the bottom of the deployment summary. At the very bottom, there's a 'Cost management' section with a green dollar sign icon, a brief description about staying within budget, and a link to 'Set up cost alerts >'.

Step 5: Created the Azure DevOps Pipeline

- Defined a YAML pipeline file with build and deployment steps:
 - npm install** and **npm run build** to build the project
 - Published build artifacts to a folder named drop
 - Used Azure App Service Deploy task to deploy artifacts to the App Service

The screenshot shows the Azure DevOps Pipelines dashboard. At the top, there are tabs for 'Recent', 'All', and 'Runs', along with a 'New pipeline' button and a 'Filter pipelines' search bar. Below this, a section titled 'Recently run pipelines' lists two runs for the 'Youtube Clone' pipeline. The first run, '#20250601.1 • Set up CI with Azure Pipelines', was triggered by an individual CI for the main branch and completed yesterday. The second run, '#10 • Rename .env.example to .env', was triggered manually and completed 4m 57s ago.

The screenshot shows the Azure DevOps Pipeline editor for the 'Youtube Clone' pipeline. The left sidebar navigation includes 'Overview', 'Boards', 'Repos', 'Pipelines' (selected), 'Environments', 'Releases', 'Library', 'Task groups', 'Deployment groups', 'Test Plans', and 'Artifacts'. The main workspace displays the pipeline tasks: 'Get sources' (Azure DevOps repository), 'Agent job 1' (containing 'npm install' and 'npm build'), 'Publish Artifact: drop' (Publish build artifacts), and 'Azure App Service Deploy: MadhanDevops' (selected). The 'Azure App Service Deploy' task configuration includes fields for 'Display name' (Azure App Service Deploy: MadhanDevops), 'Connection type' (Azure Resource Manager), 'Azure subscription' (Azure for Students), 'App Service type' (Web App on Linux), and 'App Service name'.

Step 6: Ran the Pipeline

- Saved and committed the YAML file.
- Pipeline automatically triggered on push to main branch.
- All steps successfully executed: build, publish, and deploy.

Final Output:

- After the pipeline execution, the build artifacts were available.
- A deployment URL was generated from Azure App Service.

- Visiting the URL successfully shows the deployed YouTube Clone web application.

The screenshot shows the Azure DevOps interface. On the left, the 'Pipelines' menu is selected, showing a list of pipelines: Overview, Boards, Repos, Pipelines, Environments, Releases, Library, Task groups, Deployment groups, Test Plans, and Artifacts. A specific pipeline named 'Youtube Clone' is selected. On the right, the 'Jobs in run #10' section is displayed, showing a list of tasks: Agent job 1 (4m 52s), Initialize job (3s), Checkout Youtube Clon... (1s), npm install (37s), npm build (32s), Publish Artifact: drop (1s), Azure App Service ... (3m 34s), Post-job: Checkout Yo... (<1s), Finalize Job (<1s), and Report build status (<1s). The status for all tasks is green, indicating success. Below this, a detailed log window titled 'Azure App Service Deploy: MadhanDevops' shows the deployment process from start to finish, including task descriptions like 'Starting: Azure App Service Deploy: MadhanDevops', 'Task : Azure App Service deploy', and 'Description : Deploy to Azure App Service a web, mobile, or API app using Docker, Java, .NET, .NET Core, Node.js, PHP, Python, or Ruby'. The log concludes with the message 'Finishing: Azure App Service Deploy: MadhanDevops'.

The screenshot shows the deployed YouTube Clone application at the URL madhandevops-fscrc2djffcnnewb3.canadacentral-01.azurewebsites.net. The page displays a grid of video thumbnails under the heading 'New videos'. The visible thumbnails include:

- Daya - New (Lyrics)** by 7clouds: A thumbnail for a Daya music video.
- Inmate captured after escaping from second New Orleans jail** by TODAY: A thumbnail for a news story about an inmate capture.
- TÜRKÇE ÖZET | New York Knicks - Indiana Pacers | NBA Doğu Ko** by S Sport: A thumbnail for a Turkish summary of an NBA game.
- Accidents Happen! | NEW ★** by CoComelon: A thumbnail for a CoComelon cartoon video.
- #Audio | #टुन्टुन यादव | Rjd के Fan I #Tuntun_Yadav | Rid Ke Ea** by OFFICIAL: A thumbnail for an audio track by RJD.
- Kokh - Full Movie | #Pradeep Pandey** by #39-Chaitu#39- L Sanch: A thumbnail for a movie titled 'Kokh'.

This project demonstrates a full DevOps lifecycle: from source code integration to automated build and seamless deployment using Azure DevOps tools.