

Microsoft Azure Devops (MS-TFS)

Por: Carlos Carreño
ccarreno@cienciadedatos.es

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Unidad 7 TDD

- Introducción
- Configuración del Proyecto
- API Rest en Firebase
- TDD de la Aplicación
- Pull Request Develop
- Pull Request Develop Master



TDD: Introducción

- El desarrollo basado en pruebas (Test-driven development) es un ***proceso común de desarrollo de software y DevOps*** que mejora la calidad de las nuevas funciones en cualquier solución basada en código.
- TDD involucra otras dos prácticas: ***Escribir las pruebas primero (Test First Development)*** y ***Refactorización (Refactoring)***

En primer lugar, se escribe una prueba y se verifica que la nueva prueba falla. A continuación, se implementa el código que hace que la prueba pase satisfactoriamente y seguidamente se refactoriza el código escrito.

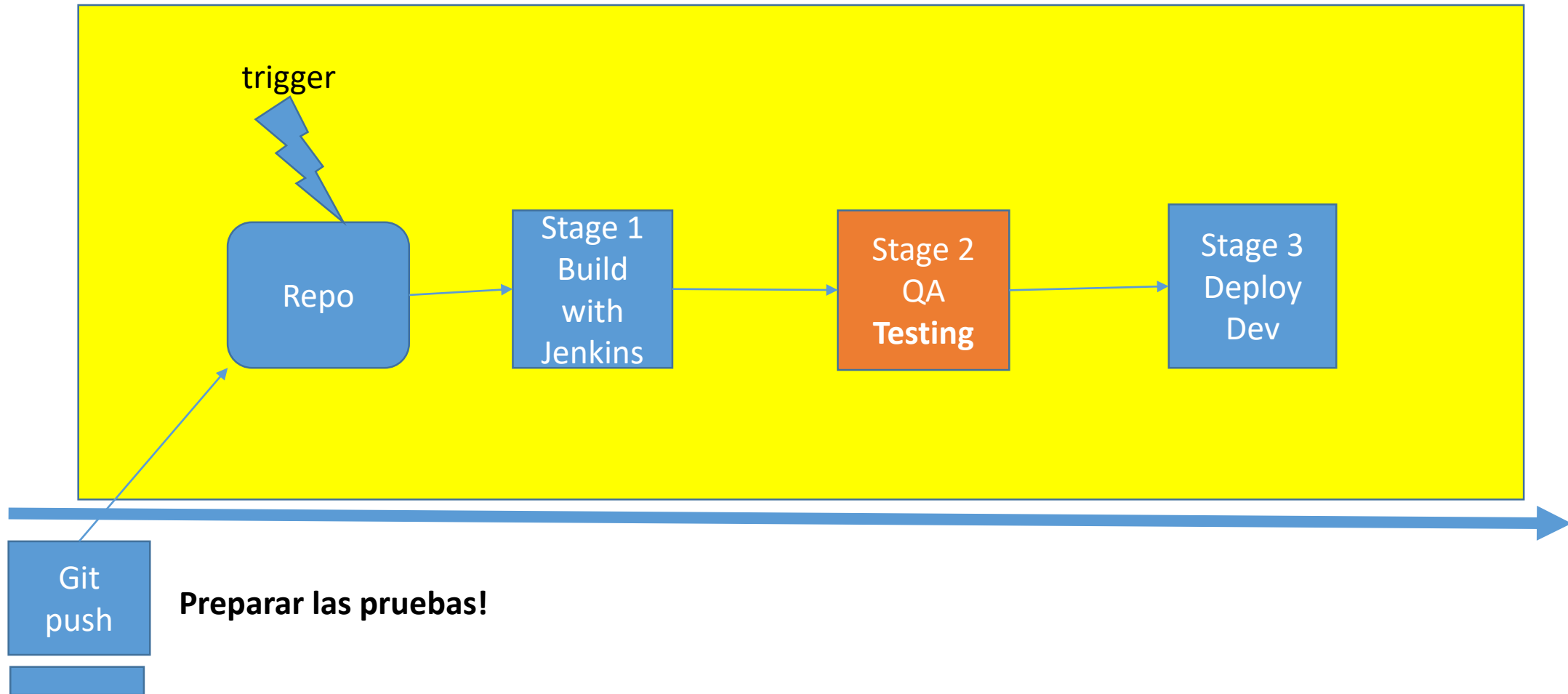
Ciclo de desarrollo conducido por pruebas TDD



1. Elegir un requisito
2. Escribir una prueba
3. Verificar que la prueba falla
4. Escribir la implementación (principio KISS - "Keep It Simple, Stupid!")
5. **Ejecutar las pruebas automatizadas**
6. Eliminación de la duplicación
7. Actualización de la lista de requisitos

AZURE DEVOPS

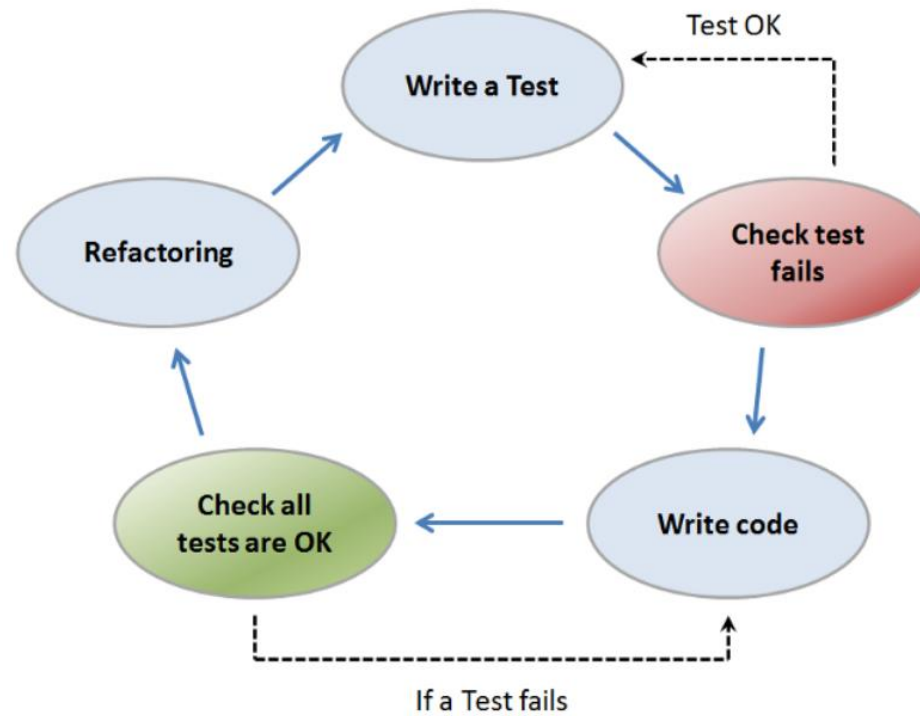
PIPELINE TEST





TDD Ciclo

- Ciclo de vida de desarrollo bajo el enfoque TDD





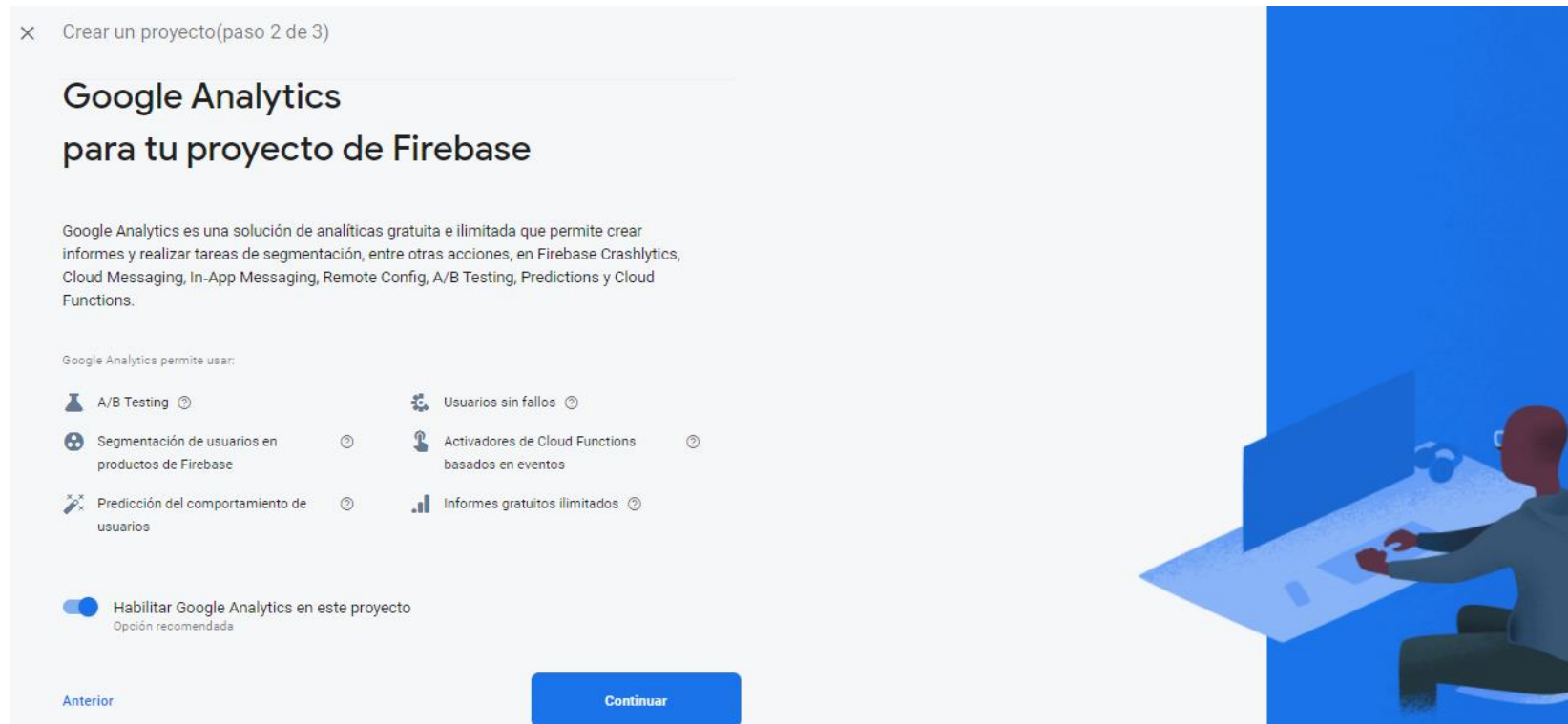
Configuración del Proyecto

- Entra a Firebase y crea un nuevo proyecto.

A screenshot of the Firebase console's 'Create a project' wizard, step 1 of 3. The browser address bar shows 'console.firebase.google.com/?pli=1'. The main heading is 'Empieza por ponerle un nombre al proyecto'. Below it, the label 'Nombre del proyecto' is followed by the text 'CognosApp' in a blue font. A small icon of a pencil and the text 'cognosapp' are visible below the input field. A checkbox is checked, with the text 'Acepto los términos de Firebase.' next to it. A blue button labeled 'Continuar' is at the bottom. On the right side of the form, there is a blue vertical banner with an illustration of a man in a suit holding a smartphone and a woman in a yellow shirt working on a laptop.



- Habilita Google Analytics





- Define tu ubicación y crea el proyecto.

×

Crear un proyecto(paso 3 de 3)

Configurar Google Analytics

Ubicación de Analytics ⓘ

Perú

Términos de Google Analytics y configuración de uso compartido de datos

☒ Usar la configuración predeterminada para compartir datos de Google Analytics. [Learn more](#)

✓ Comparte tus datos de Analytics con nosotros para ayudarnos a mejorar nuestros productos y servicios.

✓ Comparte tus datos de Analytics con nosotros para habilitar las comparativas.

✓ Comparte tus datos de Analytics con Google para habilitar el servicio de asistencia técnica.

✓ Comparte tus datos de Analytics con los especialistas en cuentas de Google.

☒ Acepto los [términos de protección de datos entre responsables del tratamiento de datos y responsables del tratamiento de datos de mediciones](#), y reconozco que estoy sujeto a la [política de consentimiento de usuarios finales de la Unión Europea](#). Es obligatorio marcar esta casilla si vas a compartir tus datos de Analytics para mejorar los productos y servicios de Google. [Más información](#)

☒ Acepto los [términos de Google Analytics](#).

Al crear el proyecto, también se creará una propiedad de Google Analytics que se asociará a tu proyecto de Firebase. De esta forma, se habilitará el flujo de datos entre los productos. Los datos que se exportan de tu propiedad de Google Analytics a Firebase están sujetos a los términos del servicio de Firebase, mientras que los datos que se importan de Firebase a Google Analytics se rigen por los términos del servicio de Google Analytics. [Más información](#)

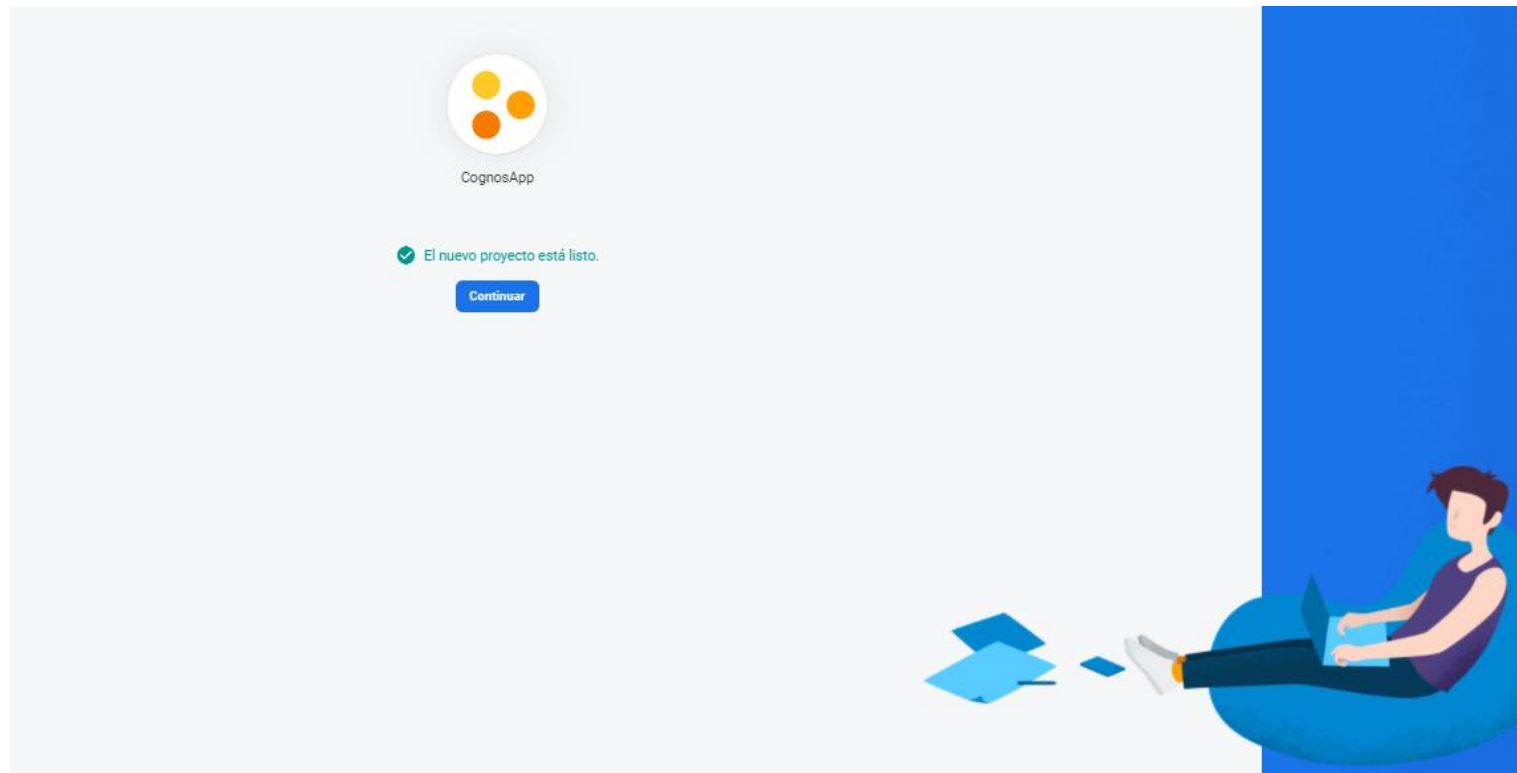
Anterior

Crear proyecto



...

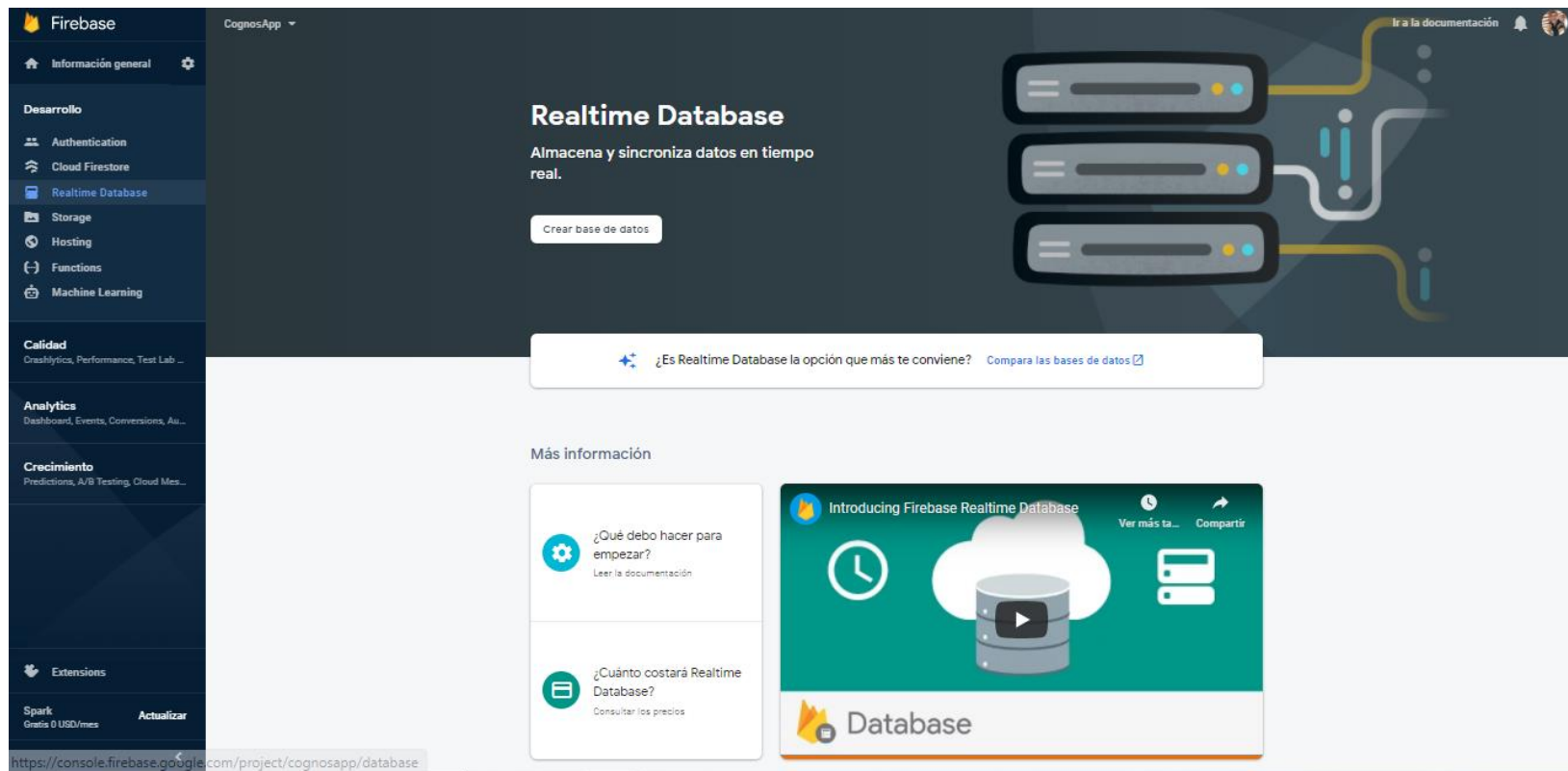
- Espera a que termine de crear el proyecto



Realtime Database



- Firebase es una base de datos para gestionar los datos en tiempo real

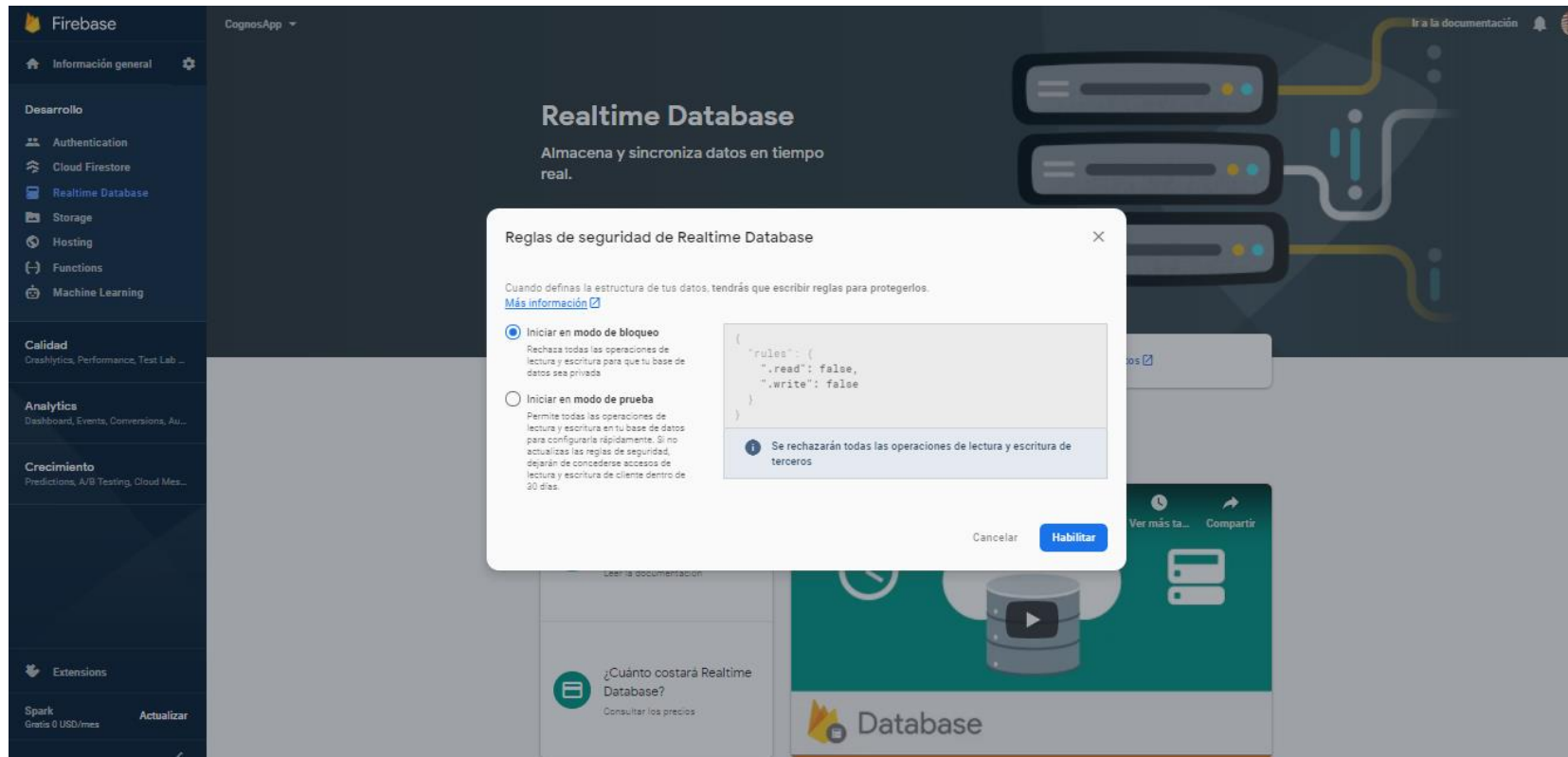


The screenshot displays the Firebase Realtime Database console interface. On the left, a dark sidebar contains navigation links for 'Información general', 'Desarrollo' (with sub-links for Authentication, Cloud Firestore, Realtime Database, Storage, Hosting, Functions, and Machine Learning), 'Calidad', 'Analytics', 'Crecimiento', 'Extensions', and 'Spark'. The main content area has a dark header with the 'Realtime Database' title and the description 'Almacena y sincroniza datos en tiempo real.' Below this is a 'Crear base de datos' button. To the right is an illustration of three server racks. A white banner below the header asks '¿Es Realtime Database la opción que más te conviene?' with a link to 'Compara las bases de datos'. The 'Más información' section at the bottom includes two cards: '¿Qué debo hacer para empezar?' with a 'Leer la documentación' link, and '¿Cuánto costará Realtime Database?' with a 'Consultar los precios' link. A video player titled 'Introducing Firebase Realtime Database' is also visible, showing a database icon and a play button. The URL at the bottom is 'https://console.firebase.google.com/project/cognosapp/database'.

Creación de la base de datos



- Crea una nueva base de datos CognosDB





• Realtime Database - Reglas

The screenshot shows the Firebase Realtime Database Rules editor. On the left is a dark sidebar with the Firebase logo and a menu. The main area is titled 'Realtime Database' and shows the 'Reglas' (Rules) tab selected. A code editor displays the default rules for the database, which deny all reads and writes. A 'Zona de prueba de reglas' (Rules test zone) button is visible in the top right of the editor area.

Firebase

Información general

Desarrollo

- Authentication
- Cloud Firestore
- Realtime Database
- Storage
- Hosting
- Functions
- Machine Learning

Calidad
Crashlytics, Performance, Test La...

Analytics
Dashboard, Events, Conversions, A...

Extensions

Spark
Gratis 0 USD/mes

Actualizar

CognosApp

Ir a la documentación

Realtime Database

Datos **Reglas** Copias de seguridad Uso

Editar reglas Supervisar reglas

Zona de prueba de reglas

```
1 {  
2   "rules": {  
3     ".read": false,  
4     ".write": false  
5   }  
6 }
```



...

- Modificando la regla, solo el desarrollador puede escribir (write)

The screenshot shows the Firebase console interface for a project named 'CognosApp'. The left sidebar contains navigation links for 'Información general', 'Desarrollo' (with sub-links for Authentication, Cloud Firestore, Realtime Database, Storage, Hosting, Functions, and Machine Learning), 'Calidad', 'Analytics', 'Extensions', and 'Spark'. The main area is titled 'Realtime Database' and has tabs for 'Datos', 'Reglas' (selected), 'Copias de seguridad', and 'Uso'. Below the tabs are buttons for 'Editar reglas' and 'Supervisar reglas'. A code editor displays the following JSON rules:

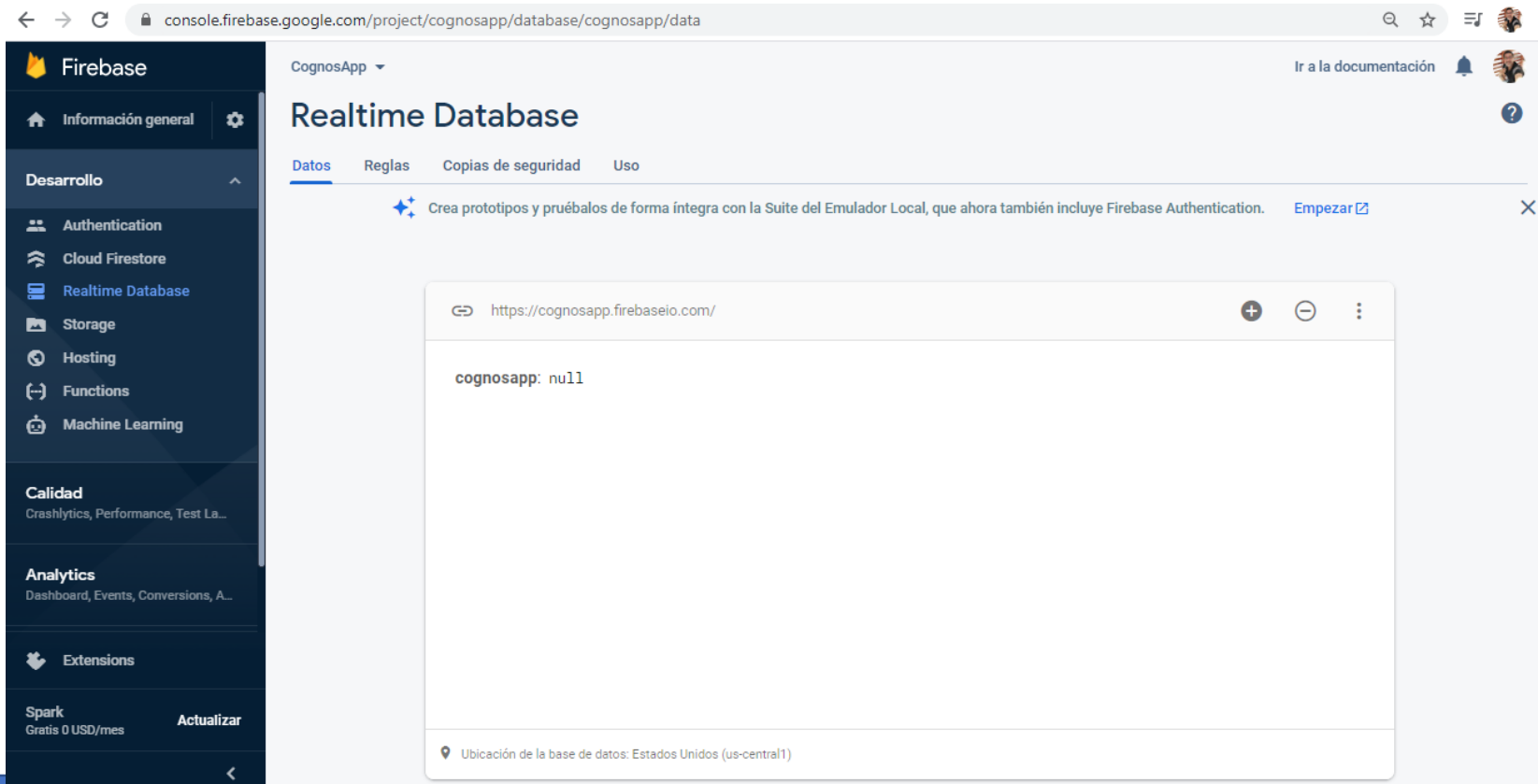
```
1 {  
2   "rules": {  
3     ".read": true,  
4     ".write": false  
5   }  
6 }
```

A 'Zona de prueba de reglas' button is visible in the top right of the editor area.




API Rest en Firebase


- API Rest de Firebase para consumir los datos







- Agregando datos


 **Firebase**


Información general 


Desarrollo


 Authentication


 Cloud Firestore

 **Realtime Database**

 Storage

 Hosting

 Functions


 Machine Learning

Calidad

Crashlytics, Performance, Test La...

Analytics


Dashboard, Events, Conversions, A...



 Extensions

Spark

Gratis 0 USD/mes



Actualizar




CognosApp 


[Ir a la documentación](#)  



Realtime Database



[Datos](#) [Reglas](#) [Copias de seguridad](#) [Uso](#)


 Crea prototipos y pruébalos de forma íntegra con la Suite del Emulador Local, que ahora también incluye Firebase Authentication. [Empezar](#) 


<https://cognosapp.firebaseio.com/>   



cognosapp: null 


Nombre SocialNetwor  


Nombre 0  

Nombre name Valor Instagram 

Nombre url Valor instagram.com/cognos 


Nombre 1  

Nombre name Valor Twitter 

Nombre url Valor twitter.com/cognos 

Cancelar

Añadir

 Ubicación de la base de datos: Estados Unidos (us-central1)



• Añadir datos

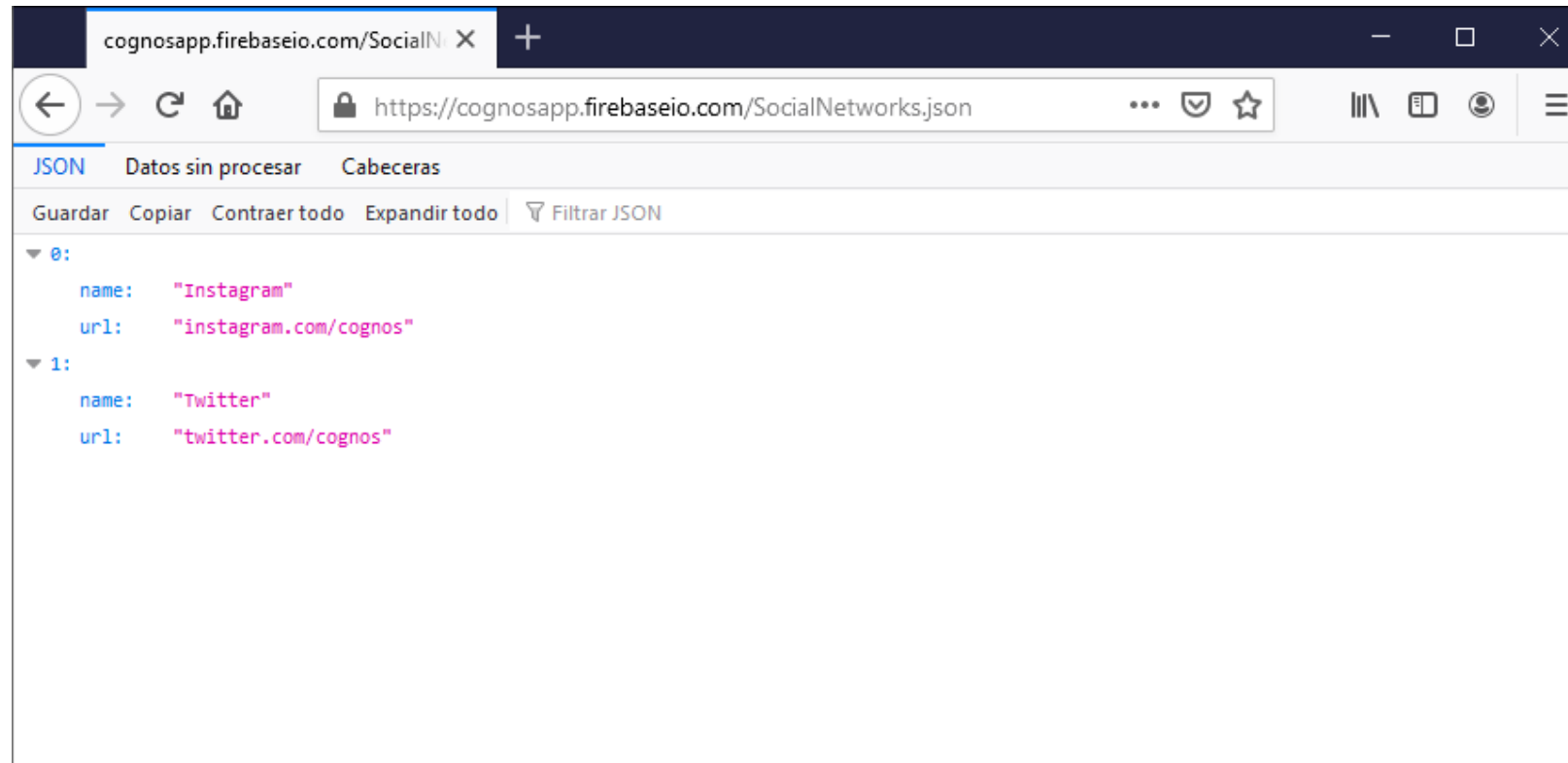
The screenshot shows the Firebase Realtime Database interface. On the left is a dark sidebar with the 'Firebase' logo and a menu including 'Información general', 'Desarrollo' (with sub-items like Authentication, Cloud Firestore, Realtime Database, Storage, Hosting, Functions, Machine Learning), 'Calidad', 'Analytics', 'Extensions', and 'Spark'. The main area is titled 'CognosApp' and 'Realtime Database'. It has tabs for 'Datos', 'Reglas', 'Copias de seguridad', and 'Uso'. A notification banner at the top says 'Crea prototipos y pruébalos de forma íntegra con la Suite del Emulador Local, que ahora también incluye Firebase Authentication.' Below this, a JSON tree view shows the database structure: 'cognosapp' is the root, containing a 'SocialNetworks' node. This node has two children, indexed 0 and 1. Child 0 has 'name: "Instagram"' and 'url: "instagram.com/cognos"'. Child 1 has 'name: "Twitter"' and 'url: "twitter.com/cognos"'. At the bottom, it indicates the location: 'Ubicación de la base de datos: Estados Unidos (us-central1)'.

```
https://cognosapp.firebaseio.com/  
  
cognosapp  
├── SocialNetworks  
│   ├── 0  
│   │   ├── name: "Instagram"  
│   │   └── url: "instagram.com/cognos"  
│   └── 1  
│       ├── name: "Twitter"  
│       └── url: "twitter.com/cognos"  
  
Ubicación de la base de datos: Estados Unidos (us-central1)
```



...

- Ejemplo de Datos: SocialNetwork link





TDD de la Aplicación

- Crea un proyecto de la aplicación en Azure DevOps

Azure DevOps

AzureDevopsCognos

Projects My work items My pull requests

ContosoAir

Create new project

Project name *
CognosAPP ✓

Description
Aplicacion Demostrativa de Cognos

Visibility

Public
Anyone on the internet can view the project. Certain features like TFVC are not supported.

Private
Only people you give access to will be able to view this project.

Advanced

Cancel Create



- Agrega work items

Azure DevOps

AzureDevopsCognos / CognosAPP / Boards / Sprints

Search

CognosAPP

Overview

Boards

Work items

Boards

Backlogs

Sprints

Queries

Repos

Pipelines

Test Plans

Artifacts

Project settings

CognosAPP Team

No iteration dates
Set dates

Taskboard Backlog Capacity Analytics

+ New Work Item Column Options

Sprint 1 Person: All

Collapse all

To Do

Doing

Done

165 TDD en CognosAPP

ccarreno

State To Do

166 Test Unit de Welcome Page services

ccarreno

State To Do

167 Development Welcome Page Services

ccarreno

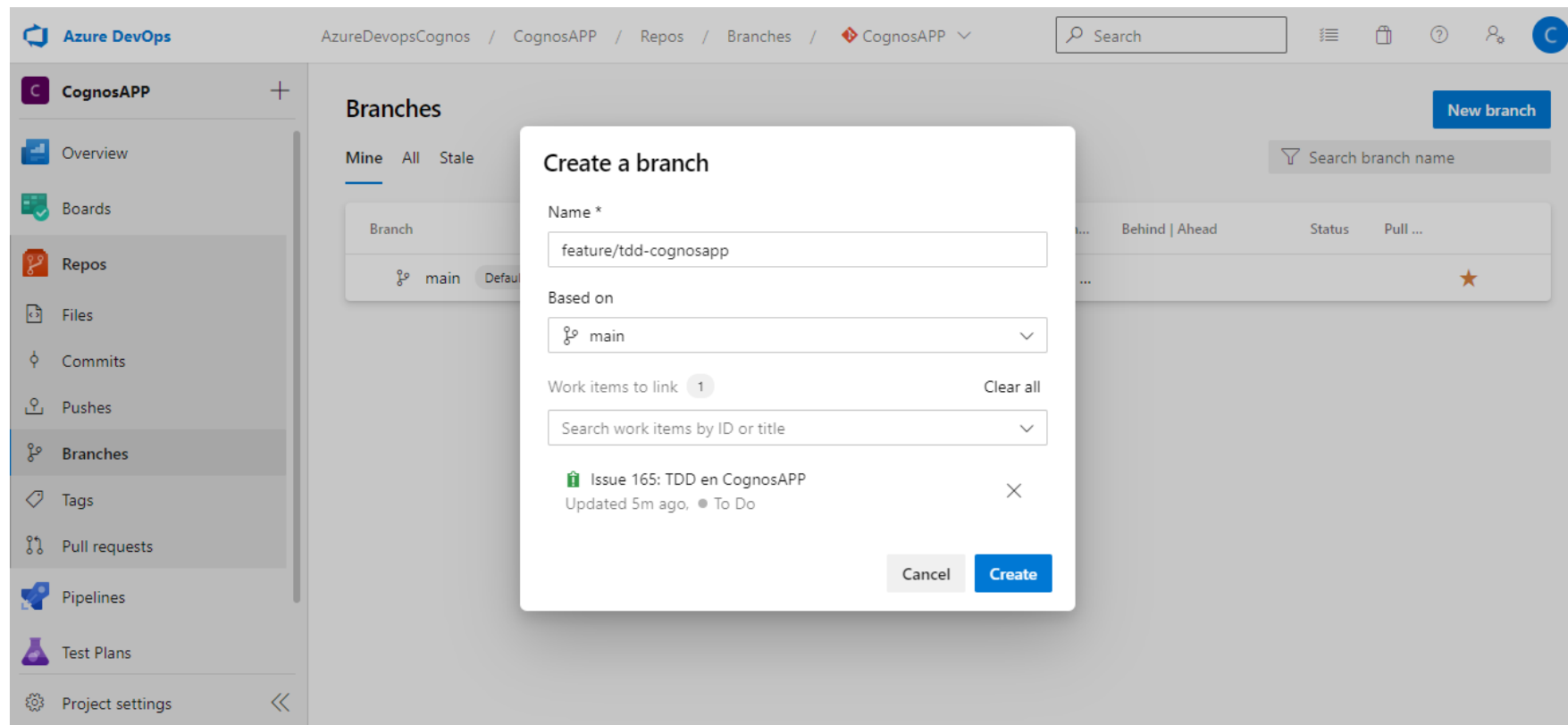
State To Do

+



Creación de una Rama

- En TDD es una buena practica trabajar con ramas (branches)





Clonación de Rama

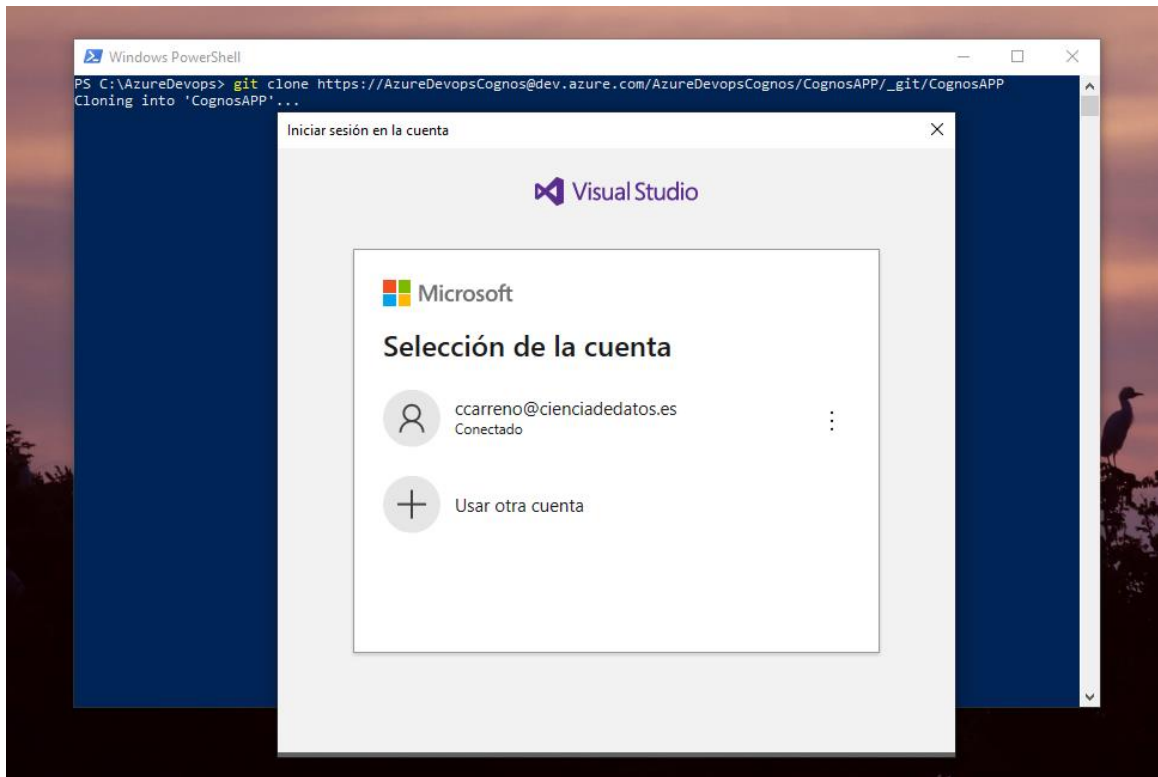
- Puedes clonar la rama para trabajar localmente

The screenshot displays the Azure DevOps web interface for a project named 'CognosAPP'. The left sidebar contains navigation links: Overview, Boards, Repos (selected), Files, Commits, Pushes, Branches, Tags, Pull requests, Pipelines, Test Plans, and Project settings. The main content area shows the 'Files' view for the 'feature/tdd-cognosapp' branch, with a 'README.md' file listed. A 'Clone Repository' dialog box is open in the foreground, showing the 'Command line' tab with the HTTPS URL 'https://AzureDevopsCognos@dev.azure.c...'. The dialog also includes a 'Generate Git Credentials' button, an 'IDE' section with a 'Clone in VS Code' button, and a note about Git authentication.



...

- Clonación de la rama





...

- Directorio local

```
Windows PowerShell
PS C:\AzureDevops> git clone https://AzureDevopsCognos@dev.azure.com/AzureDevopsCognos/CognosAPP/_git/CognosAPP
Cloning into 'CognosAPP'...
remote: Azure Repos
remote: Found 3 objects to send. (42 ms)
Unpacking objects: 100% (3/3), 734 bytes | 3.00 KiB/s, done.
PS C:\AzureDevops> dir

    Directorio: C:\AzureDevops

Mode                LastWriteTime         Length Name
----                -
d-----         24/11/2020   10:47 a.m.          CognosAPP
d-----         20/11/2020   10:21 a.m.          MyShuttle
d-----         12/11/2020    07:56 p.m.      PartsUnlimited

PS C:\AzureDevops>
```


Modificando la Rama



- Actualizando artefactos

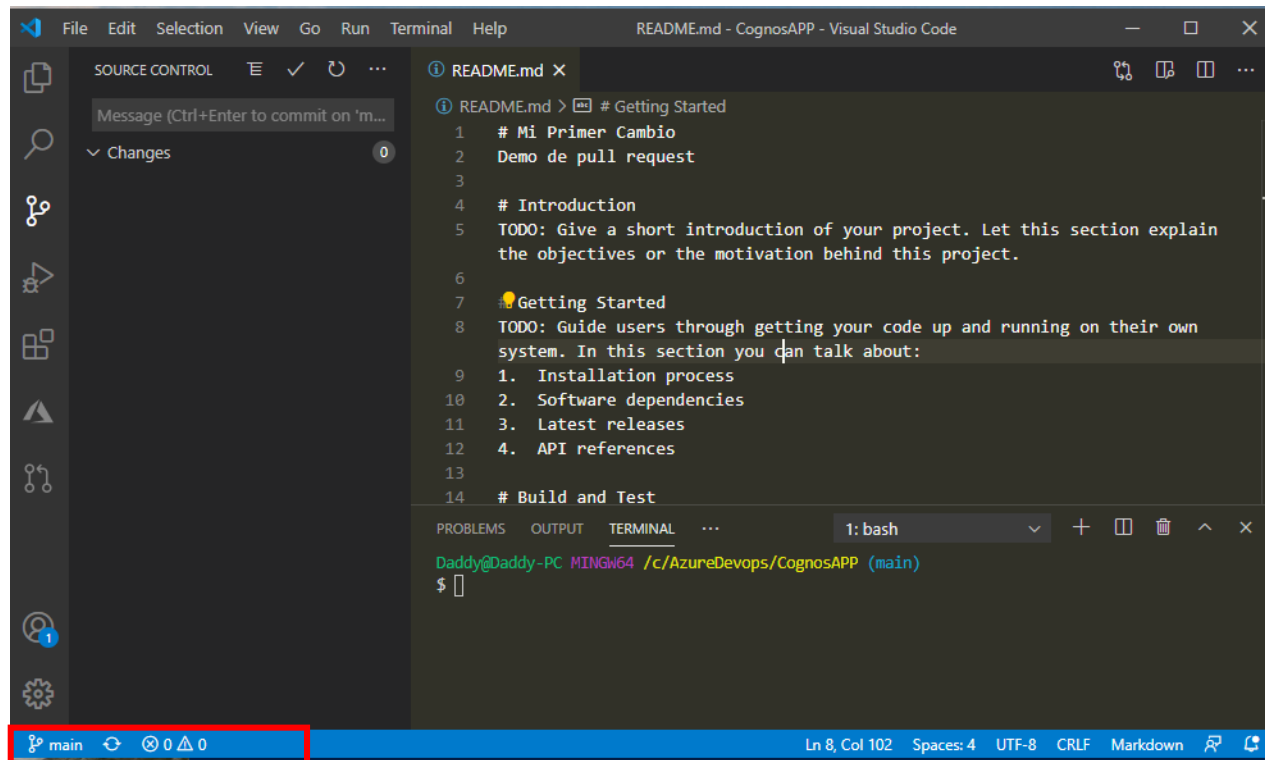
A screenshot of the Visual Studio Code editor interface. The title bar reads 'README.md - CognosAPP - Visual Studio Code'. The left sidebar shows the 'SOURCE CONTROL' view with a pull request titled 'Primer Cambio' and a 'Changes' section containing 'README.md'. The main editor area displays the content of 'README.md' with line numbers 1 through 20. The text includes sections for 'Getting Started', 'Introduction', 'Build and Test', and 'Contribute'. The status bar at the bottom indicates 'main*' and 'Ln 8, Col 82 Spaces: 4 UTF-8 CRLF Markdown'.

```
1 # Mi Primer Cambio
2 Demo de pull request
3
4 # Introduction
5 TODO: Give a short introduction of your project. Let this section explain
6 the objectives or the motivation behind this project.
7
8 # Getting Started
9 TODO: Guide users through getting your code up and running on their own
10 system. In this section you can talk about:
11 1. Installation process
12 2. Software dependencies
13 3. Latest releases
14 4. API references
15
16 # Build and Test
17 TODO: Describe and show how to build your code and run the tests.
18
19 # Contribute
20 TODO: Explain how other users and developers can contribute to make your
code better.
If you want to learn more about creating good readme files then refer the
following [guidelines](https://docs.microsoft.com/en-us/azure/devops/repos/
git/create-a-readme?view=azure-devops). You can also seek inspiration from
```

Pull Request Develop



- Actualización de la Rama



Pull Request Develop Master



- Actualización del Master (main)

The screenshot shows the 'New pull request' page in Azure DevOps. The left sidebar contains navigation links: Overview, Boards, Repos (selected), Files, Commits, Pushes, Branches, Tags, Pull requests, Pipelines, Test Plans, and Artifacts. The main area is titled 'New pull request' and shows the source branch 'main' and the target branch 'feature/tdd-cognosapp'. The 'Overview' tab is active, displaying a form with fields for Title, Description, Reviewers, Work items to link, and Tags. The 'Title' field contains 'Primer Cambio'. The 'Description' field contains 'Primer Cambio'. The 'Reviewers' field has a search bar. The 'Work items to link' field has a search bar. The 'Tags' field is empty. A 'Create' button is at the bottom right.

Azure DevOps

AzureDevOpsCognos / CognosAPP / Repos / Pull requests / CognosAPP

CognosAPP

Overview

Boards

Repos

Files

Commits

Pushes

Branches

Tags

Pull requests

Pipelines

Test Plans

Artifacts

Project settings

New pull request

main into feature/tdd-cognosapp

Overview Files 1 Commits 1

Title

Primer Cambio

Description

Primer Cambio

Markdown supported. Drag & drop, paste, or select files to insert. Link work items.

Primer Cambio

Reviewers

Add required reviewers

Search users and groups to add as reviewers

Work items to link

Search work items by ID or title

Tags

Create



- Completa el merge

The screenshot displays the Azure DevOps web interface. On the left, a sidebar contains navigation links: Overview, Boards, Repos, Files, Commits, Pushes, Branches, Tags, Pull requests (selected), Pipelines, Test Plans, and Artifacts. The main area shows a pull request titled 'Primer Cambio' by user 'ccarreno', merging 'main' into 'feature/tdd-cognosapp'. It indicates 'No merge conflicts' and has a description 'Primer Cambio'. A comment box and a log entry 'ccarreno created the pull request' are visible. Overlaid on the right is a 'Complete pull request' dialog box. This dialog allows selecting a 'Merge type' (currently 'Merge (no fast forward)'), visualizing the merge, and choosing 'Post-completion options': 'Complete associated work items after merging' (checked), 'Delete main after merging' (unchecked), and 'Customize merge commit message' (unchecked). At the bottom of the dialog are 'Cancel' and 'Complete merge' buttons.



- Merge complete!

Azure DevOps

AzureDevOpsCognos / CognosAPP / Repos / Pull requests / CognosAPP

Search

C

CognosAPP

+

Overview

Boards

Repos

Files

Commits

Pushes

Branches

Tags

Pull requests

Pipelines

Test Plans

Artifacts

Project settings

Primer Cambio

Completed

13

ccarreno

main into feature/tdd-cognosapp

Overview

Files

Updates

Commits

ccarreno completed this pull request

Just now

Cherry-pick

Revert

Merged PR 3: Primer Cambio

24442183

ccarreno

Just now

Show details

No merge conflicts

Last checked Just now

Description

Primer Cambio

Show everything (2)

Add a comment...

ccarreno completed the pull request

Just now

ccarreno created the pull request

Just now

Delete source branch

Reviewers

Add

Required

No required reviewers

Optional

No optional reviewers

Tags

+

No tags

Work items

+

No work items

Welcome to the new pull request experience!

Learn more

Dismiss

Learn more

Dismiss

Mostrar los Cambios después del Merge



- Verifica los cambios en la master

The screenshot shows the Azure DevOps web interface for a repository named 'CognosAPP'. The left sidebar contains navigation links: Overview, Boards, Repos, Files, Commits, Pushes, Branches, Tags, Pull requests, Pipelines, Test Plans, and Artifacts. The 'Files' view is active, showing a file named 'MI README.md' with a last change of '8m ago' and a commit hash of '9b2dd45a'. The main content area displays the file's content, which includes sections for 'Mi Primer Cambio', 'Introduction', 'Getting Started', 'Build and Test', and 'Contribute'. The 'Introduction' section contains a TODO item: 'TODO: Give a short introduction of your project. Let this section explain the objectives or the motivation behind this project.' The 'Getting Started' section contains a TODO item: 'TODO: Guide users through getting your code up and running on their own system. In this section you can talk about: 1. Installation process 2. Software dependencies 3. Latest releases 4. API references'. The 'Build and Test' section contains a TODO item: 'TODO: Describe and show how to build your code and run the tests.' The 'Contribute' section contains a TODO item: 'TODO: Explain how other users and developers can contribute to make your code better.'

Azure DevOps

AzureDevOpsCognos / CognosAPP / Repos / Files / CognosAPP

Search

CognosAPP

Overview

Boards

Repos

Files

Commits

Pushes

Branches

Tags

Pull requests

Pipelines

Test Plans

Artifacts

Project settings

feature/tdd-cognosapp

Type to find a file or folder...

Set up build

Clone

Files

Contents

History

Name ↑	Last change	Commits
MI README.md	8m ago	9b2dd45a Primer Cambio jbossgroup

Mi Primer Cambio

Demo de pull request

Introduction

TODO: Give a short introduction of your project. Let this section explain the objectives or the motivation behind this project.

Getting Started

TODO: Guide users through getting your code up and running on their own system. In this section you can talk about:

1. Installation process
2. Software dependencies
3. Latest releases
4. API references

Build and Test

TODO: Describe and show how to build your code and run the tests.

Contribute

TODO: Explain how other users and developers can contribute to make your code better.

Laboratorio

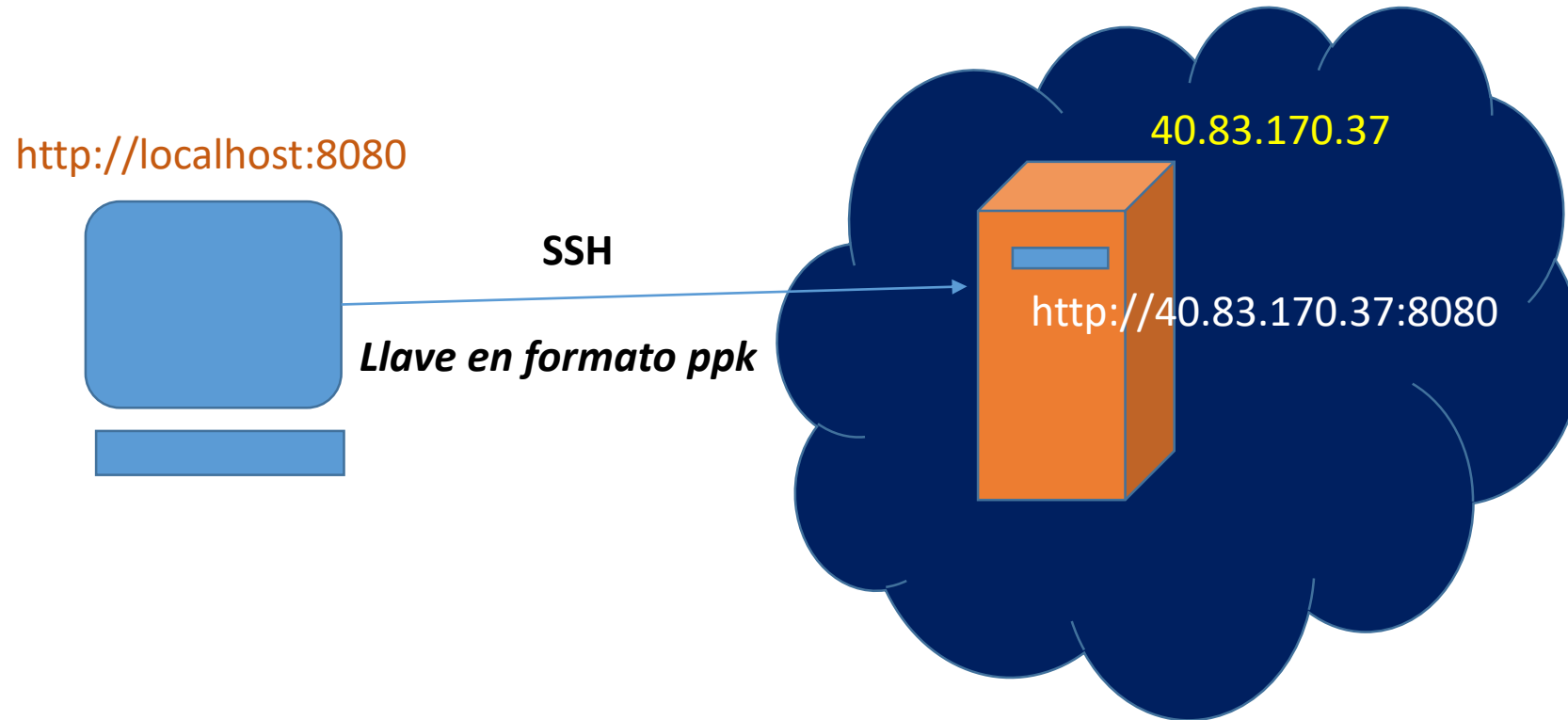


- **Lab 10 Configuring a CD pipeline for your Jenkins CI**
- Lab 11 Configure CI-CD for Node application with Azure Pipelines (Optional)

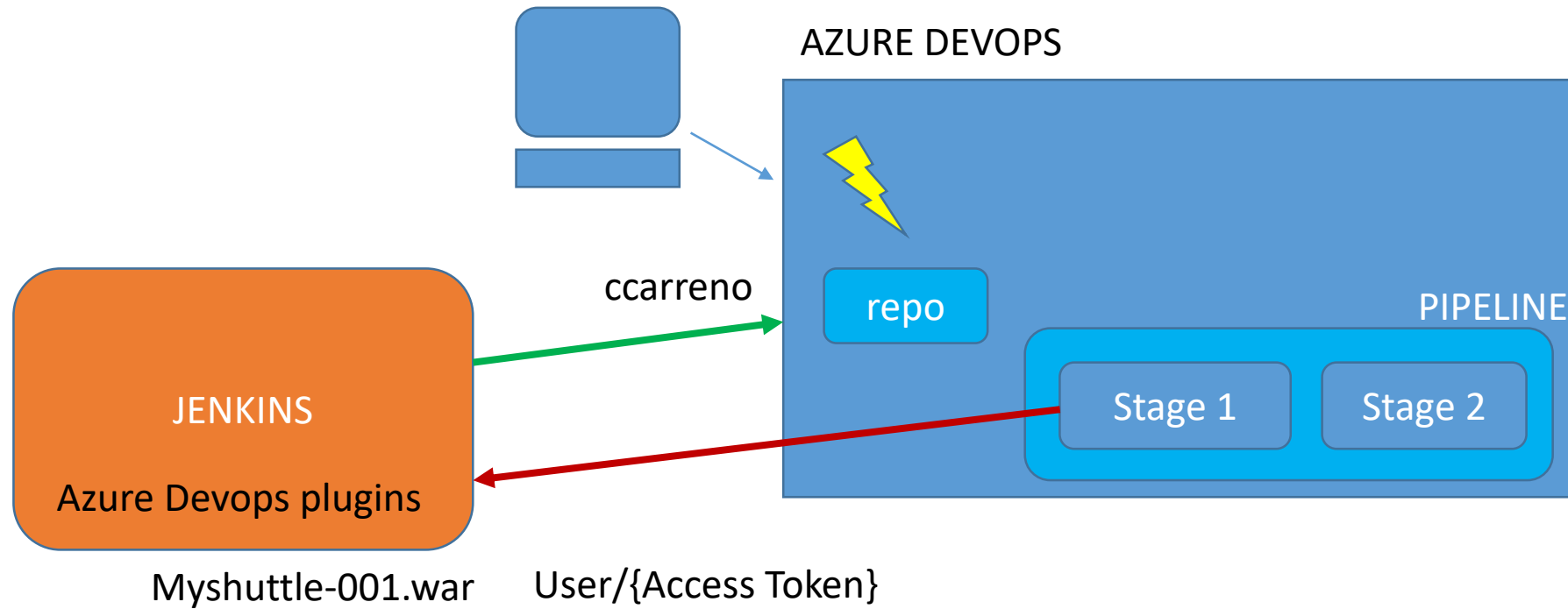
Putty.exe túnel ssh-http



MICROSOFT AZURE



Azure Devops - Jenkins





Referencias

- https://es.wikipedia.org/wiki/Desarrollo_guiado_por_pruebas