

# Seminar

S1

Software Engineering

Computer Science School  
DSIC – UPV

## Chapter 2.

**The software Process. Methodologies**

## **Introduction to Azure DevOps. Tool Support for Agile Software Development**

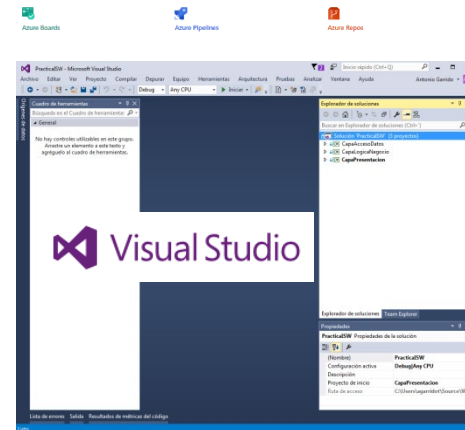
# Goals

- Apply agile methodology to software development using DevOps (cloud collaboration tool for development teams) and Microsoft Visual Studio

## Part 1. Project management with Azure DevOps



Utilice todos los servicios de DevOps o elija solo lo que necesita para complementar sus flujos de trabajo actuales



## Part 2. Visual Studio Project development (Seminar 2)

# Part 1. Project Management (Web)

- Elaborate a project plan applying an agile methodology using DevOps

## Steps:

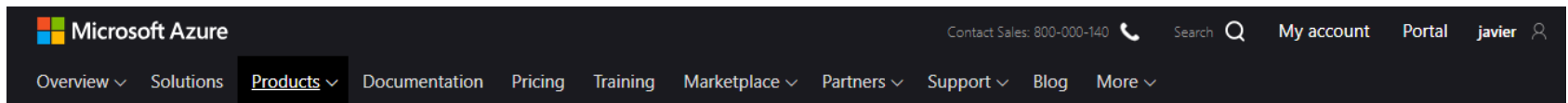
- ✓ Creating an Azure DevOps Organization
- ✓ Creating a new project
- ✓ Adding members to the team
- ✓ Work management

# ✓ Creating a DevOps account

Starting from the Visual Studio Web:

<https://azure.microsoft.com/en-us/services/devops/>

<https://azure.microsoft.com/es-es/services/devops/>



## Azure DevOps

Plan smarter, collaborate better,  
and ship faster with a set of  
modern dev services.

Start free

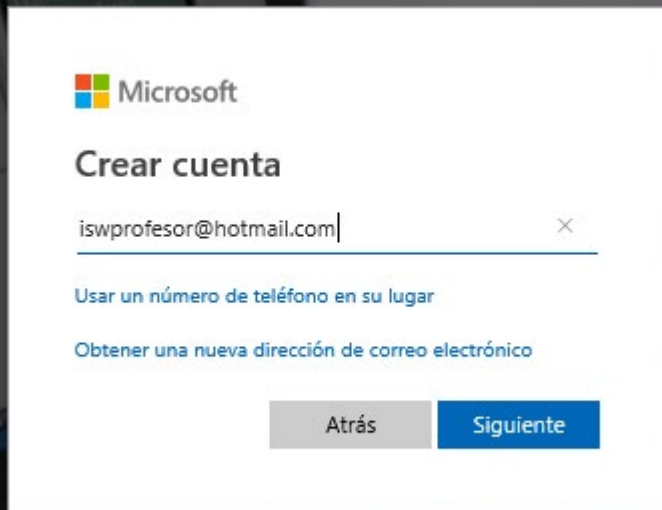
Already have an account?

[Sign in to Azure DevOps >](#)



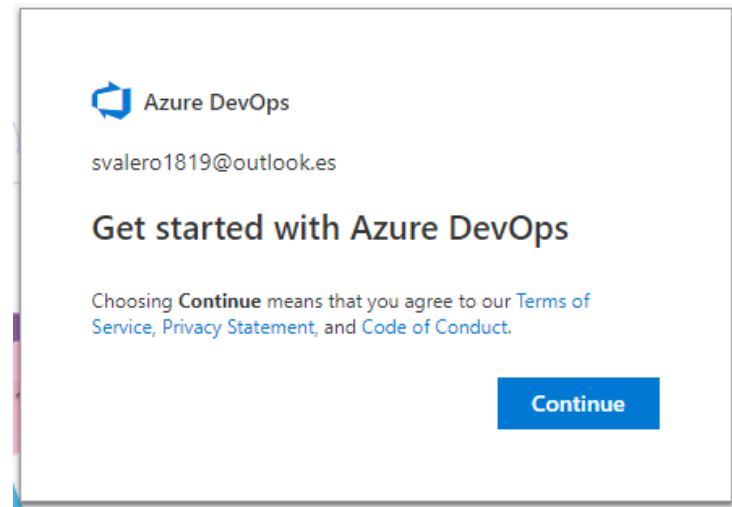
# ✓ Creating a DevOps Organization

Sign up with a personal Microsoft Account (you may use upv.edu from UPV)



The screenshot shows the Microsoft account creation interface. At the top is the Microsoft logo. Below it, the heading "Crear cuenta" is displayed. A text input field contains the email address "iswprofesor@hotmail.com". Below the input field, there are two links: "Usar un número de teléfono en su lugar" and "Obtener una nueva dirección de correo electrónico". At the bottom, there are two buttons: "Atrás" (grey) and "Siguiente" (blue).

A default organization is created with your user name



The screenshot shows the Azure DevOps "Get started" page. At the top is the Azure DevOps logo. Below it, the email address "svalero1819@outlook.es" is displayed. The heading "Get started with Azure DevOps" is prominent. Below this, a line of text states: "Choosing **Continue** means that you agree to our [Terms of Service](#), [Privacy Statement](#), and [Code of Conduct](#)." At the bottom right, there is a blue button labeled "Continue".

An organization is a team developing software projects

# Modifying a DevOps Organization Name

Select an organization name.

Eg:

**2019-upv-isw-3E1-team01**

Organization settings menu.

A new server on the cloud is available:

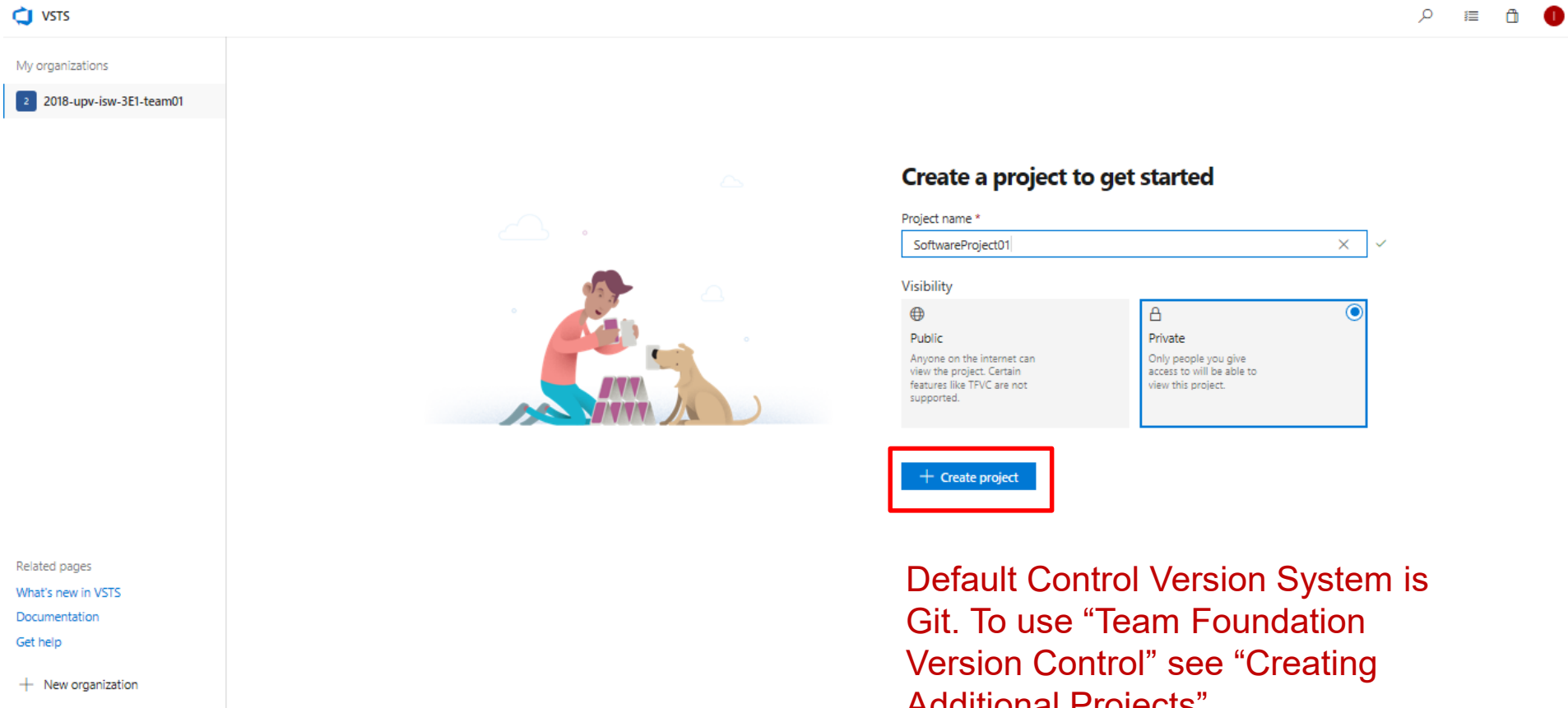
<https://2019-upv-isw-3E1-team01.visualstudio.com>

or at

<https://dev.azure.com/2019-upv-isw-3E1-team01/>

The screenshot shows the Azure DevOps settings page for an organization named 'svalero1819'. The left sidebar contains the 'Organization settings' menu item, which is highlighted with a red box and a red number '1'. An arrow points from this menu item to a dialog box titled 'Cambiar el nombre de la dirección URL de la organización'. The dialog box contains a warning message and a checkbox labeled 'Conozco las consecuencias y aun así deseo cambiar el nombre de mi organización.' which is checked and highlighted with a red box and a red number '3'. Below the checkbox is a text input field containing '2018-upv-isw-2dl1-profi'. The dialog box also shows the current organization name 'svalero1819' and the new name '2018-upv-isw-2dl1-profi'. The background shows the 'Organization Settings' page with the 'Overview' tab selected, and the 'Dirección URL de la organización' field highlighted with a red box and a red number '2'.

# ✓ Creating first project



**My organizations**

- 2018-upv-isw-3E1-team01

**Related pages**

- [What's new in VSTS](#)
- [Documentation](#)
- [Get help](#)
- [+ New organization](#)

## Create a project to get started

Project name \*

SoftwareProject01

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.

**+ Create project**

Default Control Version System is Git. To use “Team Foundation Version Control” see “Creating Additional Projects”

# Project Main View

The screenshot displays the Azure DevOps interface for a project named 'SoftwareProject01'. The interface is divided into several sections:

- Navigation Panel (Left):** A vertical sidebar containing icons and labels for various project components: Overview, Summary, Dashboards, Wiki, Boards, Repos, Pipelines, Test Plans, Artifacts, and Project settings. A red arrow points to the 'Project settings' option at the bottom.
- Projects List (Top Left):** A small section showing the current project 'SoftwareProject01' with a plus icon to add more.
- Project Header (Top):** Displays the project name 'SoftwareProject01' and its status as 'Private'. A red arrow points to the 'Invite' button, which is used for 'Adding Members to Project'.
- Main Content Area:** Features a large illustration of a person working on a laptop with a dog nearby. Below the illustration, it says 'Welcome to the project!' and 'What service would you like to start with?'. A red arrow points to this area, labeled 'Navigation Panel'.
- Project stats (Right):** A section titled 'Project stats' showing a graph icon and the message: 'No stats are available at this moment. Setup a service to see project activity.'

Red arrows are used to highlight specific features: 'Projects List' points to the top left, 'Adding Members to Project' points to the 'Invite' button, 'Navigation Panel' points to the main content area, and 'Project settings' points to the bottom of the sidebar.



# Creating Additional Projects

The screenshot displays the Azure DevOps web interface. In the top-left corner, the 'Azure DevOps' logo is circled in red. The breadcrumb navigation at the top reads '2018-upv-isw-3E1-team01 / SoftwareProject01 / Overview / Summary'. The left sidebar contains a list of navigation items: 'SoftwareProject01' (selected), 'Overview', 'Summary', 'Dashboards', 'Wiki', 'Boards', 'Repos', 'Pipelines', 'Test Plans', 'Artifacts', and 'Project settings'. The main content area is titled 'SoftwareProject01' and includes a 'Private' lock icon and an 'Invite' button. The central part of the page features an illustration of a person working on a laptop with a dog nearby, and the text 'Welcome to the project! What service would you like to start with?'. On the right, the 'Project stats' section shows a graph icon and the message 'No stats are available at this moment. Setup a service to see project activity.'

# Creating Additional Projects

**IMPORTANT:**  
Decide whether you want Git or TFS version control

Software Process

Control Version System

**Create new project**

Project name \*

Description

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

Version control ?  
Git

Work item process ?  
Agile

# ✓ Adding members to the team

Azure DevOps

2018-upv-isw-3E1-team01 / SoftwareProject01 / Overview / Summary

SoftwareProject01

Private Invite

Add Users to SoftwareProject01

Add users or groups \*

Search users

Add to team(s) \*

SoftwareProject01 Team

Add Cancel

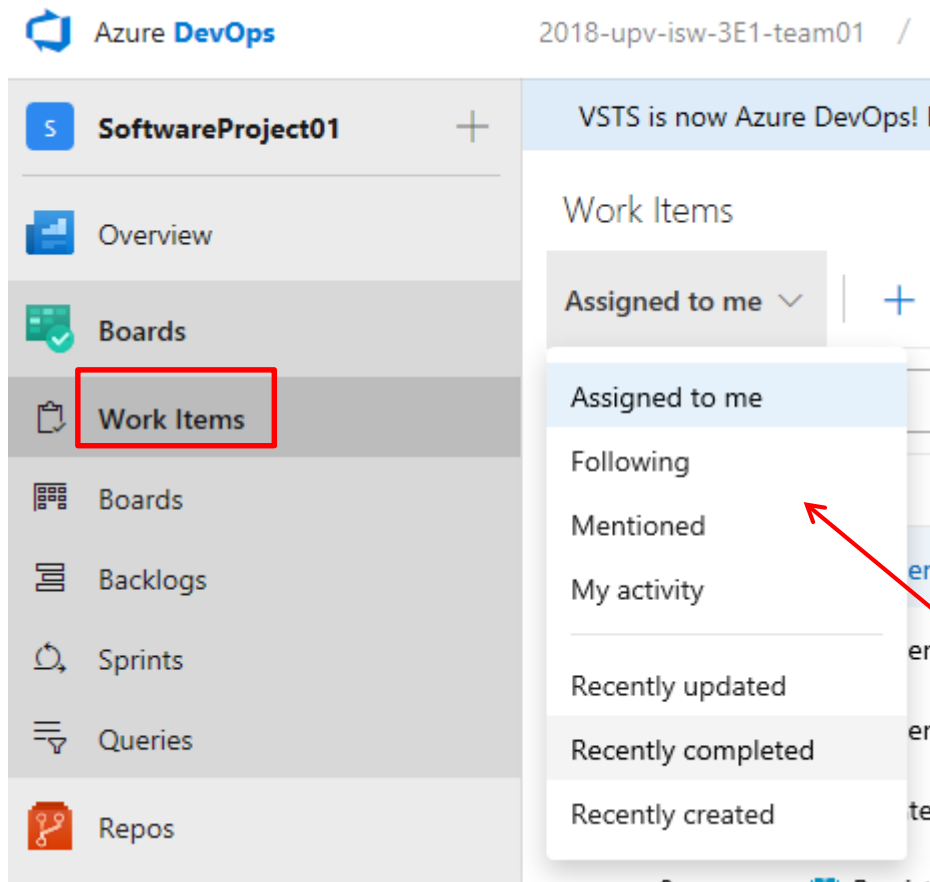
Up to 5 team members may be added to your Project (free basic configuration)

Enter their sign-in addresses or display names, one at a time or all at the same time. Each team member gets an invitation email

NOTE: the email address must be associated to a Microsoft Account

Project settings

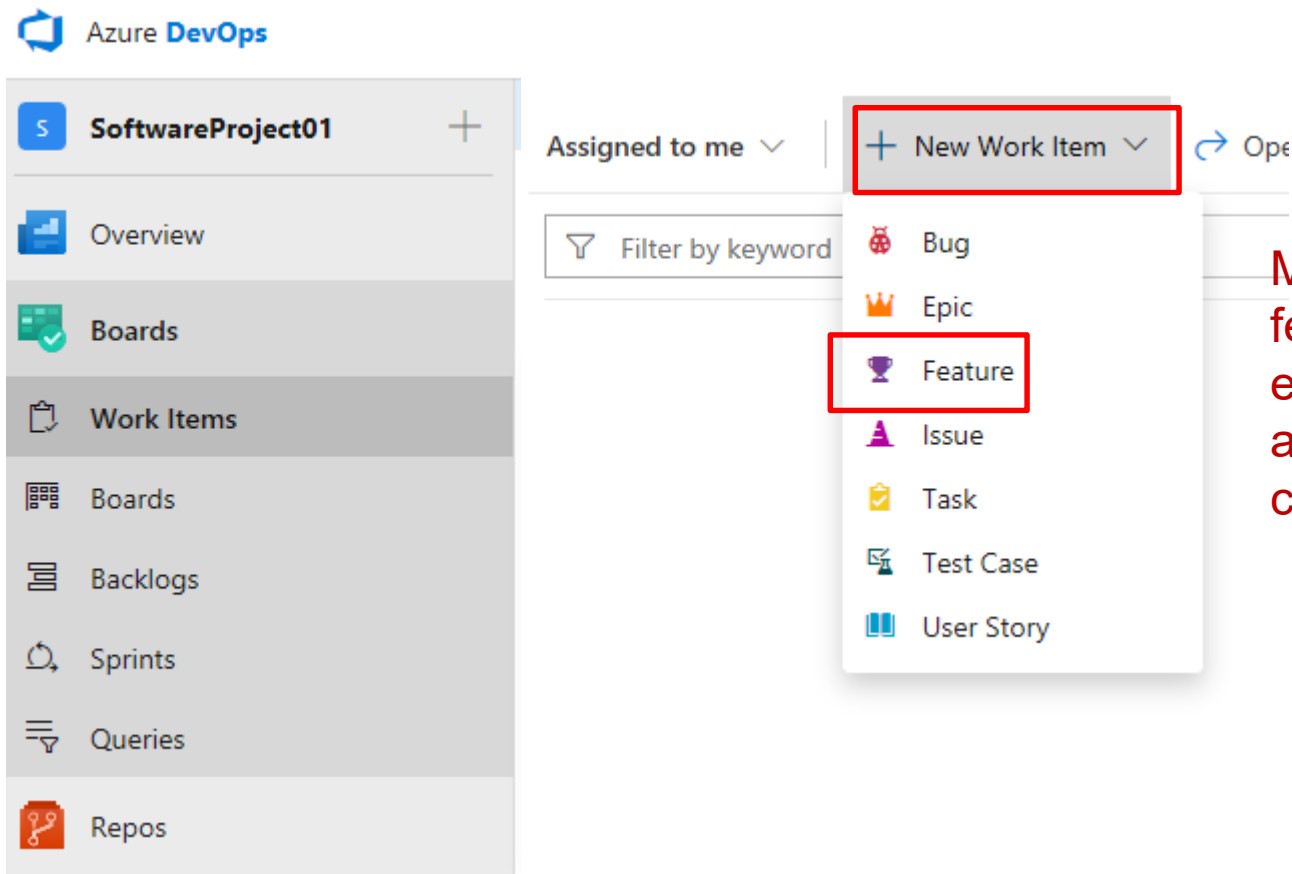
# ✓ Work Management (Work Items)



List of work items filtered by different criteria

# Creating Work Items

Being an Agile methodology we have *sprints*, *features*, *user stories*, *tasks* (inside user stories), etc.





Many developers consider features and user stories equivalent but a feature can also be considered a collection of user stories

# Creating Work Items


FEATURE 1


## 1 Renting Vehicle Functionality

 Javier Jaén

 0 comments

Add tag


 Save

 Follow







State  Active

Area 2018-upv-isw-3E1-teacher01

Updated by iswteacher2018 2 hours ago

Reason  Implementation started

Iteration 2018-upv-isw-3E1-teacher01\Iteration 1

[Details](#)



 (3)



### Description

**B** *I* U      

### Discussion



Add a comment. Use # to link a work item, ! to link a pull request, or @ to mention a person.

### Planning

Priority

2

Risk

Effort

Business Value

Time Criticality

Start Date

Target Date


### Development

[+ Add link](#)




Development hasn't started on this item.


[Create a new branch](#)




### Related Work

[+ Add link](#) 

Child (3)

  2 Display Available Vehicles  
Updated an hour ago,  Active

  4 New Rental  
Updated 2 hours ago,  Active

  3 View Vehicle Features  
Updated an hour ago,  New

# ✓ Work Management (Boards)

Items can also be created on the board directly

Selection of Type of Board  
There are boards to display features or stories

Drag & Drop items to change status Active<->Resolved<-> Closed

Your board consists of a list of work items. You use work items to share information, assign work to team members, track dependencies, organize work, etc.

# Work Management (Boards)

User Stories can be added to a Feature directly on the board

The screenshot displays the Azure DevOps interface for a project named 'SoftwareProject01'. The left sidebar shows the navigation menu with 'Boards' selected. The main area shows the 'Features backlog' board with columns for 'New', 'Active' (1/5), 'Resolved' (0/5), and 'Closed'. A feature item titled 'Renting Vehicle Functionality' by 'Javier Jaén' is highlighted. A context menu is open over this feature, showing a '+ Add User Story' button and a list of user stories: 'View Vehicle Features', 'New Rental', and 'Display Available Vehicles'. A red arrow points from the text 'User Stories can be added to a Feature directly on the board' to the '+ Add User Story' button. A red box highlights the 'Features' dropdown menu in the top right corner.



# Work Management (Backlogs)

Backlogs can be used to assign work items to Iterations using Drag and Drop

The screenshot displays the Azure DevOps interface for a project named 'SoftwareProject01'. The left sidebar shows the navigation menu with 'Backlogs' highlighted. The main area shows the '2018-upv-isw-3E1-teacher01 Team' backlog. A table lists work items, including three user stories and three tasks. A red arrow indicates the 'Display Available Vehicles' user story being dragged towards the 'Iterations list' on the right. The 'Iterations list' shows 'Iteration 1' as the 'Current' iteration, with a planned effort of 3. A red box highlights the 'Stories' button in the top right corner of the backlog view.

Order	Work Item Type	Title
1	User Story	View Vehicle Features
2	User Story	New Rental
3	User Story	Display Available Vehicles
	Task	Create DB Connection
	Task	Access Vehicles Table
	Task	Display Available Vehicles UI

**Planning**  
Drag and drop work items to include them in a sprint.

**Backlog** 2018-upv-isw-3E1-teacher01

**Iteration 1** **Current**  
Planned Effort: -  
3 3

**Iteration 2**  
No work scheduled yet

Iterations list

# Work Management (Sprints)

Tasks can be added to User stories directly

The screenshot shows the Azure DevOps interface for a project named 'SoftwareProject01'. The left sidebar contains navigation options: Overview, Boards, Work Items, Boards, Backlogs, Sprints (highlighted with a red box), Queries, and Repos. The main area displays the '2018-upv-isw-3E1-teacher01 Team' sprint board. The board has columns for 'New', 'Active', and 'Closed'. A red arrow points to a task being added to a user story in the 'New' column. The user stories listed are 'View Vehicle Features' (State: New), 'New Rental' (State: Active), and 'Display Available Vehicles' (State: Active). The 'Display Available Vehicles' story has two tasks: 'Access Vehicles Table' and 'Display Available Vehicles UI', both in the 'Active' column. The 'Closed' column has one task: 'Create DB Connection'.

User Story	State	Tasks
View Vehicle Features	New	
New Rental	Active	
Display Available Vehicles	Active	Access Vehicles Table, Display Available Vehicles UI
	Closed	Create DB Connection

Sprints show the progress of tasks within a given sprint

# ✓ Work management. Workflow progression

As work progresses, team members can update the state and reassign it as needed until they are completed (closed)

The screenshot displays the Azure DevOps interface for a Sprints board. The left sidebar shows the navigation menu with options like Overview, Summary, Dashboards, Wiki, Boards, Repos, Pipelines, Test Plans, and Artifacts. The main area shows the '2018-upv-isw-3E1-teacher01 Team' sprint board. The board is organized into columns: New, Active, and Closed. Work items are represented as cards with a plus icon in the 'New' column and a checkmark icon in the 'Active' and 'Closed' columns. The work items are: 'View Vehicle Features' (New), 'New Rental' (Active), 'Display Available Vehicles UI' (Active), 'Create DB Connection' (Closed), and 'Access Vehicles Table' (Closed). The 'View Vehicle Features' card shows a state of 'New' and is assigned to 'Javier Jaén'. The 'New Rental' card shows a state of 'Active' and is assigned to 'Javier Jaén'. The 'Display Available Vehicles UI' card shows a state of 'Active' and is assigned to 'Javier Jaén'. The 'Create DB Connection' card shows a state of 'Closed' and is assigned to 'Javier Jaén'. The 'Access Vehicles Table' card shows a state of 'Closed' and is assigned to 'Javier Jaén'. The board also includes a 'Collapse all' button and a 'New Work Item' button.

Azure DevOps

iswteacher2018 / 2018-upv-isw-3E1-teacher01 / Work / Sprints

SoftwareProject01

2018-upv-isw-3E1-teacher01 Team

No iteration dates  
[Set dates](#)

Taskboard Backlog Capacity + New Work Item

Iteration 1

Collapse all

New Active Closed

View Vehicle Features  
Javier Jaén  
State: New

New Rental  
Javier Jaén  
State: Active

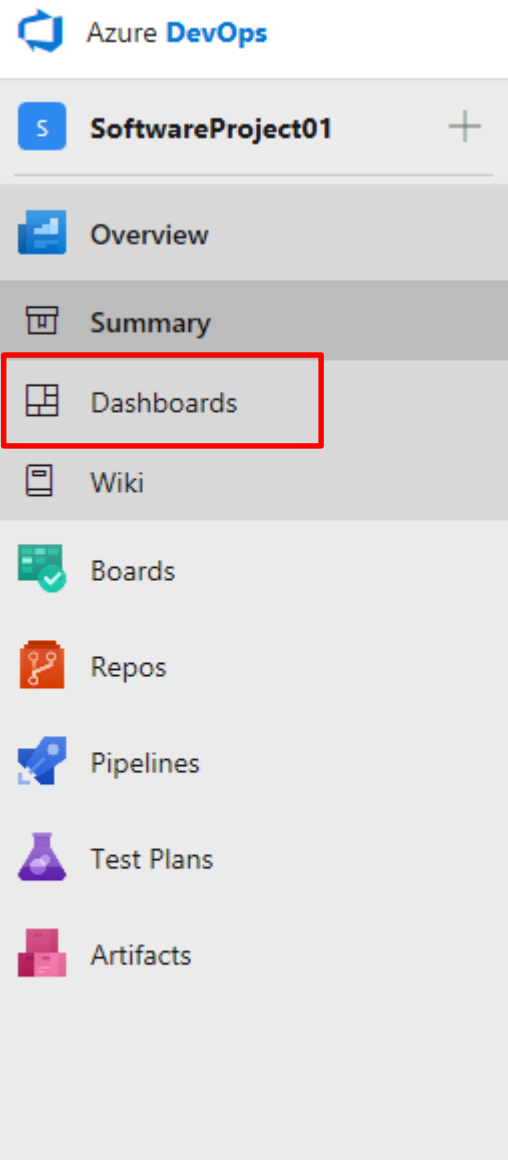
Builds  
Releases\*  
Library  
Task groups  
Deployment groups

Display Available Vehicles UI  
Javier Jaén

Create DB Connection  
Javier Jaén

Access Vehicles Table  
Javier Jaén

# ✓ Dashboards



This dashboard doesn't have widgets just yet!

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

[Add a widget](#)

You can configure your own personalized dashboard by adding widgets with the reporting information you are interested in

# ✓ Dashboards

Add, edit, move or resize your widgets

Done Editing

## Add Widget



### Chart for Test Plans

Create charts for test case authoring and test case execution status for test plans and test suites



### Chart for Work Items

Visualize work items like bugs, user stories, and features using shared work item queries.



### Code Tile

Display the number of recent changes in

Don't see a widget? Explore the [Extension Gallery](#)

Add

# Project Settings

The screenshot shows the Azure DevOps interface. At the top, the header includes the Azure DevOps logo, the user '2018-upv-isw-3dl1-profesor', and the navigation path 'ProyectoISW / Settings'. A search icon and a menu icon are also present.



The left sidebar contains a list of project-related options: Overview, Boards, Repos, Pipelines, Test Plans, Artifacts, and Project settings. The 'Project settings' option at the bottom is highlighted with a red rectangle.

The main content area is titled 'Project Settings > Overview'. It features a sub-menu on the left with options: General (expanded), Overview (selected), Services, Teams, Security, Notifications, Service hooks, and Dashboards. Below this are sections for 'Boards' (Project configuration, Team configuration) and 'Build and release' (Service connections).




The 'Project details' section on the right contains a green square icon with a white 'P'. A red text annotation points to this icon, stating: 'Notifications, teams, security policies, etc. can be managed here'. Below the icon, the 'Name' field is set to 'ProyectoISW' with a 'Rename' button. The 'Description' field is an empty text box. The 'Visibility' section shows 'Private' with an 'Edit' button. The 'Process' section is partially visible at the bottom.

# Task

- Create an Agile Azure DevOps project and define example sprints, tasks, etc.

SoftwareProject01 Team  

Backlog Analytics [+ New Work Item](#) [View as Board](#) [Column Options](#) [...](#)

 	Order	Work Item Type	Title	State	Effort
	1	Feature	Architectural Design Definition	New	
		User Story	Presentation Layer	Active	
		Task	Implement Visual Studio Presentation Layer	New	
		User Story	Business Logic Layer	Active	
		Task	Implement Visual Studio Business Logic layer	New	
		User Story	Persistence Layer	Active	
		Task	Implement Visual Studio Persistence Layer	New	
	2	Feature	Testing Definition	New	
		User Story	Testing Project	New	
		Task	Create Testing Project	New	

# Optional Tasks

- Read the DevOps documentation
  - <https://docs.microsoft.com/en-us/azure/devops/index?view=vsts>
  - <https://docs.microsoft.com/en-us/azure/devops/user-guide/index?view=vsts>