

# Refresher on GitHub Concepts

INTERMEDIATE GITHUB CONCEPTS



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# Your instructors

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# Course overview

- GitHub Projects
- Admin & authentication
- InnerSource & security



# Repositories

- ❑ A **repository (repo)** stores and manages project files
- ❑ Can be **private** or **public**
- ❑ Includes a **README.md** file with a project description

The screenshot shows a GitHub repository page for 'ecommerce-data-hub'. The repository is private and was created by StanKonkin. It has 17 commits, 3 branches, and 0 tags. The main branch is 'master'. The repository contains several files and folders: '.github/workflows', 'models', 'notebooks', 'pipelines', 'scripts', 'README.md', and 'requirements.txt'. The 'About' section describes it as a 'Repository for analyzing e-commerce sales and customer data'. It has 4 watchers and 0 forks. There are no releases published.

File/Folder	Description	Last Commit
.github/workflows	Create main.yml	3 days ago
models	Create trained_model.pkl	3 days ago
notebooks	Create analysis_Q2.ipynb	3 days ago
pipelines	Create airflow_dag.py	3 days ago
scripts	Create data_preprocessing.py	3 days ago
README.md	Update README.md	3 days ago
requirements.txt	Update requirements.txt	3 days ago

# Branches

- ☐ Let teams work on tasks without affecting the main code
- ☐ The main branch (**master**) has the live version
- ☐ Other branches are for bug fixes and extensions

Screenshot of the `ecommerce` repo:

## Branches

Overview   Yours   Active   Stale   All

Search branches...

### Default

Branch	Updated
master	3 days ago

### Your branches

Branch	Updated
model-update-2024-Q3	18 minutes ago
bugfix-164-minor-fixes	3 days ago

# Issues

- Track problems

- Plan tasks and updates

- Manage and discuss project details

The screenshot shows a GitHub repository interface for 'datacamp / ecommerce-data-hub'. The 'Issues' tab is selected, showing 2 open issues. The search bar contains the filter 'is:issue is:open'. The first issue is titled 'Sales Data Pipeline Optimization' (#2), opened 1 minute ago by StanKonkin, with 6 tasks. The second issue is titled 'Summer Campaign Performance Review' (#1), opened 1 minute ago by StanKonkin, with 5 tasks.

Issue Title	Number	Opened By	Last Activity	Tasks
Sales Data Pipeline Optimization	#2	StanKonkin	1 minute ago	6 tasks
Summer Campaign Performance Review	#1	StanKonkin	1 minute ago	5 tasks

# Pull requests and reviews

## Pull Requests

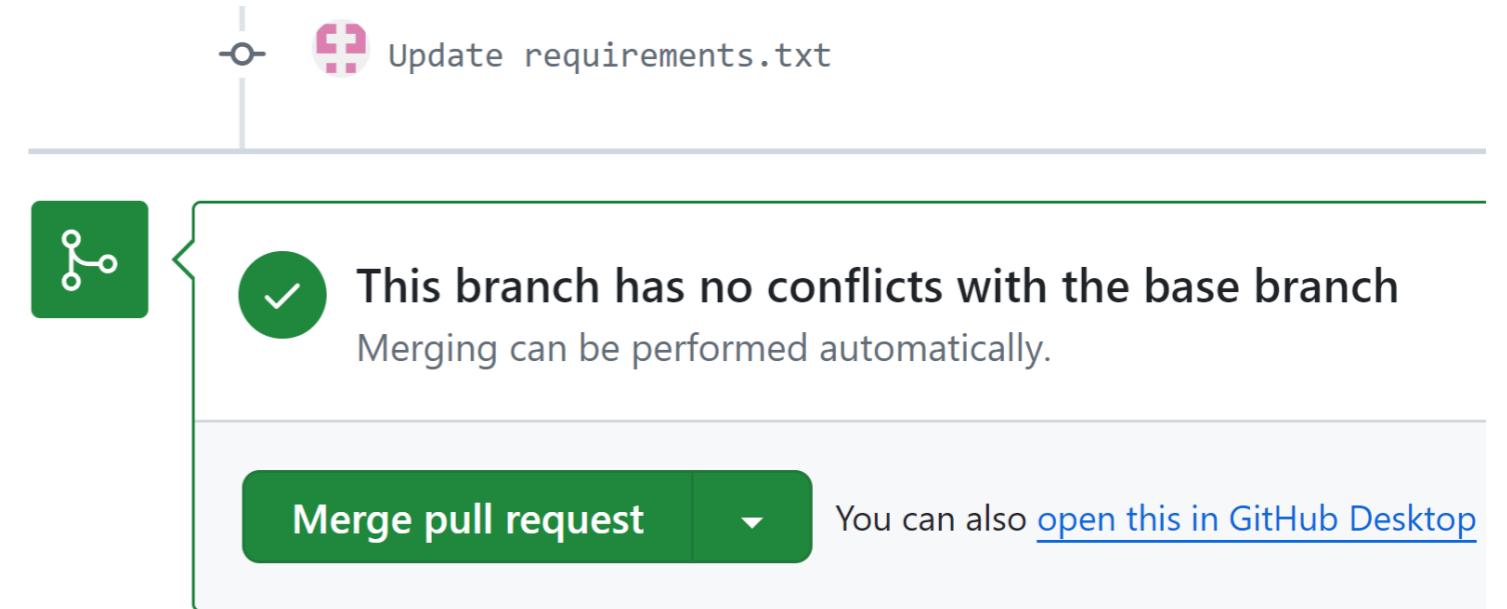
- Propose changes
- Review and discuss before merging

## Reviews

- Ensure code quality
- Approve or request changes
- Only reviewed code gets merged

# Merges

- Merge pull requests to integrate changes
- Finalize review by combining new and existing code



# **Let's practice!**

**INTERMEDIATE GITHUB CONCEPTS**

# Introduction and Setup of GitHub Projects

INTERMEDIATE GITHUB CONCEPTS

**Arne Jonas Warnke**

Content Lead for ML- and Data Engineering at DataCamp



# Introduction to GitHub Projects

- **Definition and Benefits:**

- Organizes tasks, tracks progress
- Enhances collaboration
- Simplifies tracking

The screenshot shows a GitHub Project board titled "Customer Feedback Analysis". The board has three columns: "To Do", "In Progress", and "Done".

- To Do:** 2 items. One item is a draft task: "Generate Report".
- In Progress:** 2 items. Both are draft tasks: "Clean Feedback Data" and "Analyze Sentiment".
- Done:** 1 item. A completed task: "Collect Customer Feedback".

- **Integration with Workflow:**

- Integrates with issues and PRs
- Centralized management
- Customizable boards

# GitHub Projects vs Projects (Classic)

- GitHub Projects:
  - Flexible and customizable
  - Independent of repositories
  - Advanced features
- Projects (Classic):
  - Tied to repositories
  - Basic tracking

# Setting Up a GitHub Project

The screenshot shows a GitHub repository page for 'ecommerce-data-hub'. The repository is owned by 'datacamp' and is private. It has 4 watchers, 0 forks, and 0 stars. The 'Code' tab is selected. The master branch has 17 commits from 'StanKonkin'. The commit history includes creating trained\_model.pkl, main.yml, analysis\_Q2.ipynb, airflow\_dag.py, data\_preprocessing.py, README.md, and requirements.txt. The repository is described as a 'Repository for analyzing e-commerce sales and customer data'. There are sections for 'About', 'Readme', 'Activity', 'Custom properties', '0 stars', '4 watching', '0 forks', and 'Releases'.

datacamp / ecommerce-data-hub

Type / to search

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

ecommerce-data-hub Private Watch 4 Fork 0 Star 0

master 3 Branches 0 Tags Go to file + Code

StanKonkin Create trained\_model.pkl 927a3b3 · 5 days ago 17 Commits

.github/workflows Create main.yml 5 days ago

models Create trained\_model.pkl 5 days ago

notebooks Create analysis\_Q2.ipynb 5 days ago

pipelines Create airflow\_dag.py 5 days ago

scripts Create data\_preprocessing.py 5 days ago

README.md Update README.md 5 days ago

requirements.txt Update requirements.txt 5 days ago

About

Repository for analyzing e-commerce sales and customer data

Readme Activity Custom properties 0 stars 4 watching 0 forks

Releases

No releases published [Create a new release](#)

# Setting Up a GitHub Project - Projects

datacamp / ecommerce-data-hub

Type  to search |  |  |  |  |  |  |

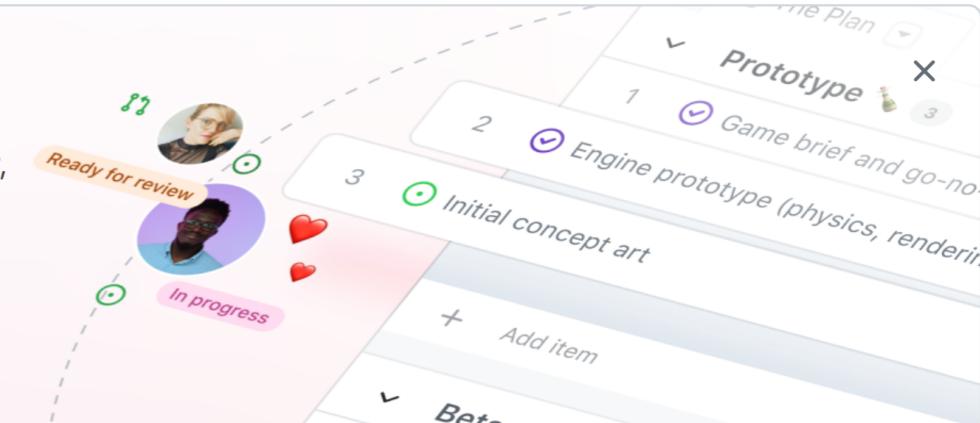
Code Issues 2 Pull requests 1 Actions **Projects** Wiki Security Insights Settings

**Projects** Templates

## Welcome to projects

Built like a spreadsheet, project tables give you a live canvas to filter, sort, and group issues and pull requests. Tailor them to your needs with custom fields and saved views.

[Learn more](#)



is:open  New project

0 Open 0 Closed Sort ▾

Provide quick access to relevant projects.  
Add projects from your organization to view them here.

# Setting Up a GitHub Project - Projects

Screenshot of the GitHub Projects interface for the repository `datacamp / ecommerce-data-hub`.

The top navigation bar includes:

- Code
- Issues (2)
- Pull requests (1)
- Actions
- Projects** (highlighted)
- Wiki
- Security
- Insights
- Settings

The main content area features a "Welcome to projects" section with the following text:

Built like a spreadsheet, project tables give you a live canvas to filter, sort, and group issues and pull requests. Tailor them to your needs with custom fields and saved views.

A "Learn more" button is present.

To the right, there is a visual representation of a project board with columns labeled "Plan", "Prototype", and "Beta". It shows user avatars with status labels like "Ready for review" and "In progress".

Below the welcome section is a search bar with the query `is:open` and a green "New project" button. A red arrow points to this button.

The search results show 0 Open and 0 Closed projects. A "Sort" dropdown menu is available.

At the bottom, there is a callout: "Provide quick access to relevant projects. Add projects from your organization to view them here." with a small icon.

# Setting Up a GitHub Project - Layouts

Create project X

Project templates

All templates

Featured

From your organization

Start from scratch

Table

Board

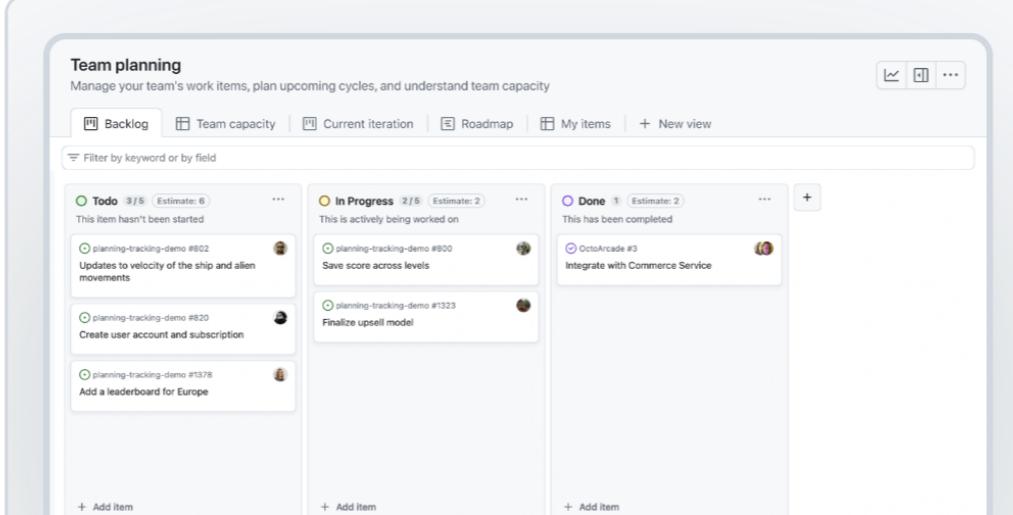
Roadmap

Search templates

Featured

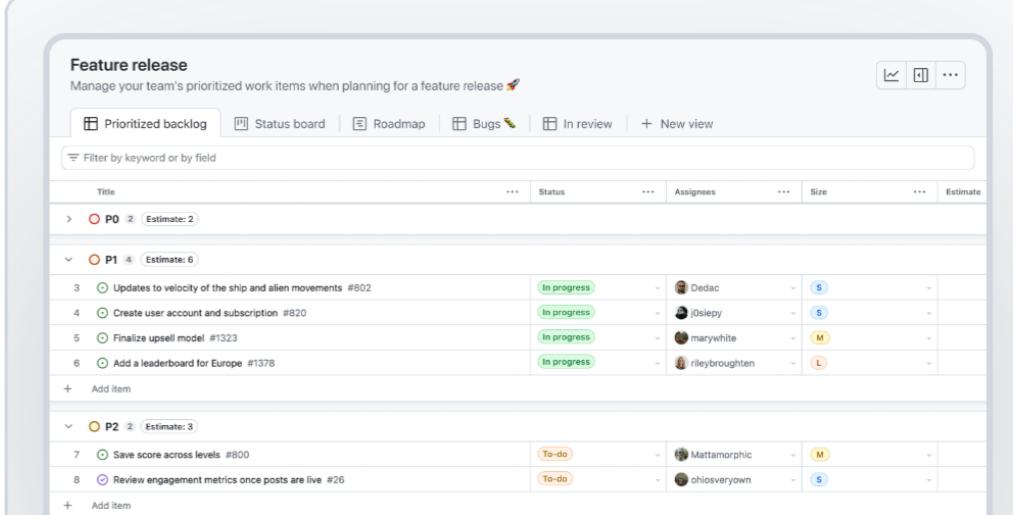
**Team planning** • GitHub

Manage your team's work items, plan upcoming cycles, and understand team capacity



**Feature release** • GitHub

Manage your team's prioritized work items when planning for a feature release 🚀



# Setting Up a GitHub Project - Table Layout

[← Create project](#)

X

## New table

Start with a powerful spreadsheet style table to filter, sort and group your issues and pull requests. Easily switch to a board or roadmap layout at any time.

## Project name

New table

### Table

[Table](#) [+ New view](#)

Filter by keyword or by field

Title	Assignees	Status	...
1 ⚡ Updates and bug fixes to sprites #827	cmwinters	Review ➤	...
2 ⚡ Updates and bug fixes to engine from Beta #823	keisaacson	Planning 📈	...
3 ⚡ Updates to collision logic #814	ohiosveryown	Done ✅	...
4 ⚡ Create user account and subscription #820	j0siepy	Building 🏗	...
5 📑 Update ProjectsSLOs.md #374	marirod	Building 🏗	...
6 ⚡ Save score across levels #800	Mattamorphic	Planning 📈	...
7 ⚡ Explore a bug #1366		Planning 📈	...
8 ⚡ If the beam leaves the window reset it #805	some-natalie	Review ➤	...
9 ⚡ Updates to alien, beam, bomb and cannon sprites #821	mkwng	Review ➤	...
10 ⚡ Develop an amazing website #43	j0siepy	Review ➤	...
11 ⚡ Integrate new payments support #1099		Review ➤	...
12 ⚡ General bug fixes from Alpha feedback #808	rileybroughten	Review ➤	...
13 ⚡ Integrate with Leaderboard Service #811	dusave and jcle	Review ➤	...

# Setting Up a GitHub Project - Board Layout

← Create project

X

## New board

Start with a board to spread your issues and pull requests across customizable columns. Easily switch to a table or roadmap layout at any time.

## Project name

New board

Board

Board + New view

Filter by keyword or by field

Planning 25 Estimate: 66 ... We're working through the details

Not Started 18 Estimate: 26 ... This work hasn't started yet

Building 17 Estimate: 53 ... Ongoing development

Review 15 Estimate: 16 ... These need a review

github/OctoArcade 21 Estimate: 33

Issue #	Description	Assignee	Priority
OctoArcade #40	Scoreboard	Squad 2	High
OctoArcade #44	Design the website	Squad 4	Medium
OctoArcade #19	Social Media Campaign		
OctoArcade #38	Create an amazing website		
OctoArcade #39	Create the design for login screen		
OctoArcade #20	Schedule social media posts	Squad 4	Medium
OctoArcade #28	Finalize design content plan with team	Squad 4	Medium
OctoArcade #41	Online scoreboard		
OctoArcade #46	Code the frontend	Squad 4	Medium
OctoArcade #47	Code the backend	Squad 3	Medium
OctoArcade #37	Bug bash		
OctoArcade #13	Create doc content plan	Squad 3	Medium
OctoArcade #16			
OctoArcade #43	Develop an amazing website	Squad 4	Medium
OctoArcade #21	Reach out to marketing team to determine final plan		
OctoArcade #12	GA Launch	Squad 3	Medium
OctoArcade #15	Doc updates for auto-add	Squad 4	Low
OctoArcade #17	Review final PR from Steve	Squad 3	Medium

# Setting Up a GitHub Project - Roadmap Layout

← Create project

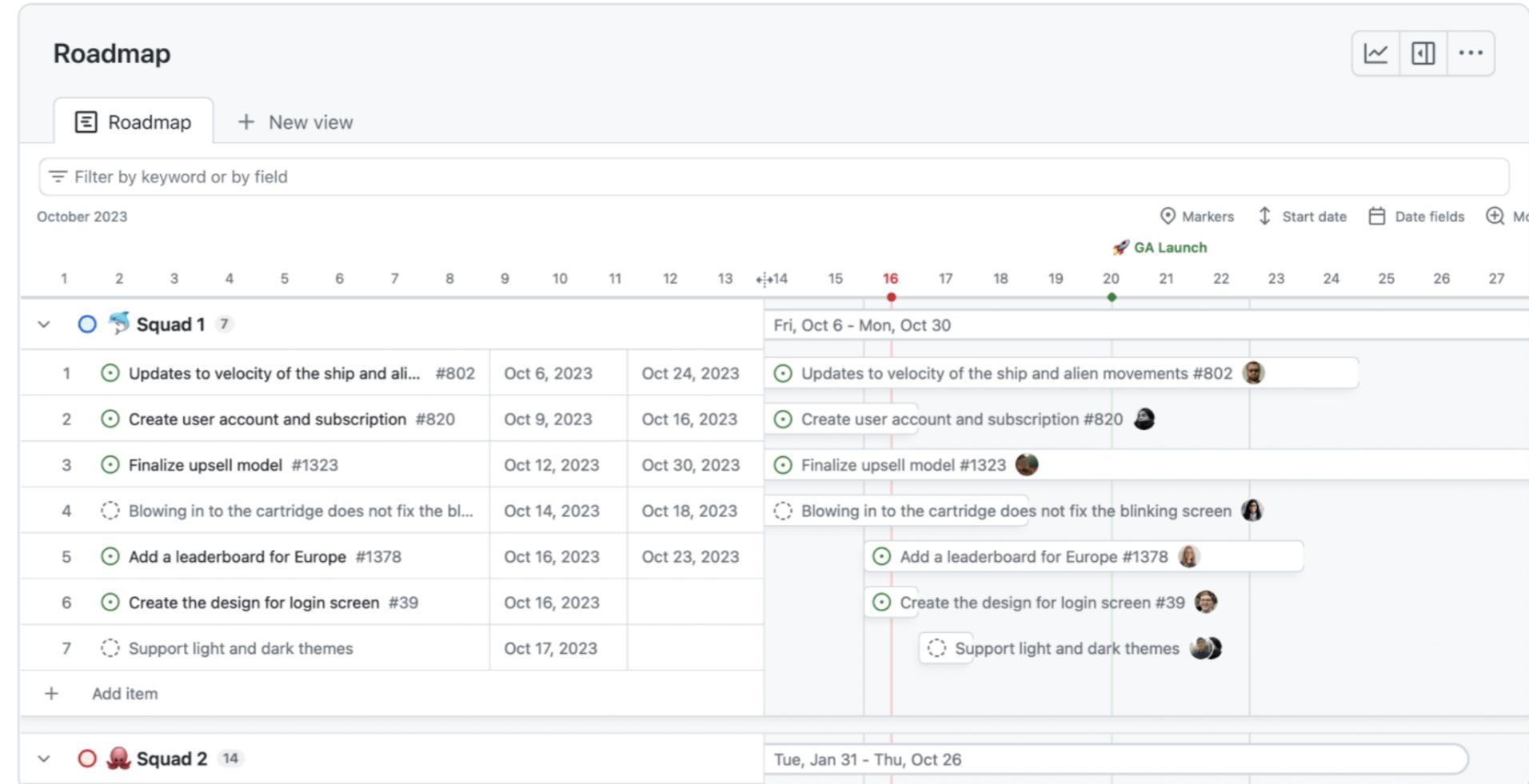
X

## New roadmap

Start with a roadmap for a high-level visualization of your project over time. Easily switch to a table or board layout at any time.

## Project name

New roadmap



# Setting Up a GitHub Project - Other Layouts

Create project

X

Project templates

All templates

Featured

From your organization

Start from scratch

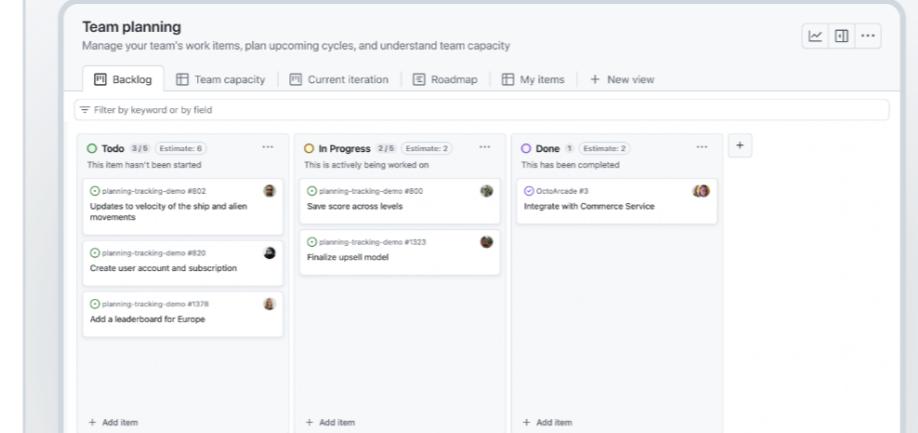
Table

Board

Roadmap

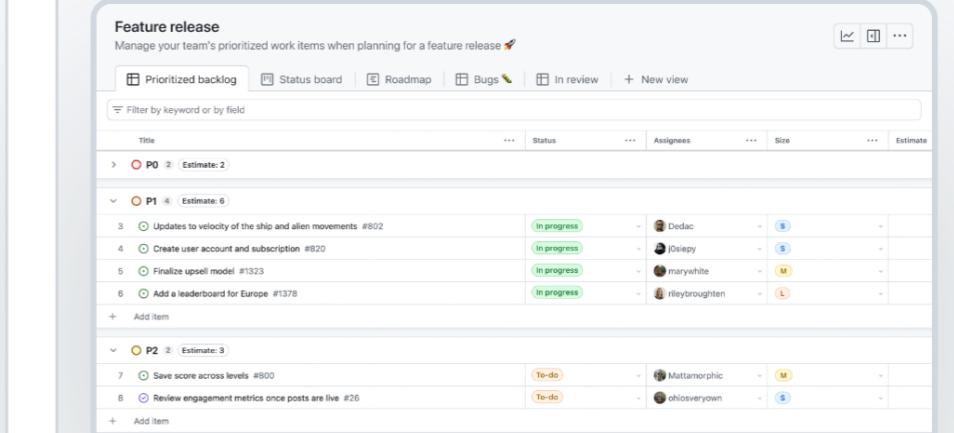
Search templates

Featured



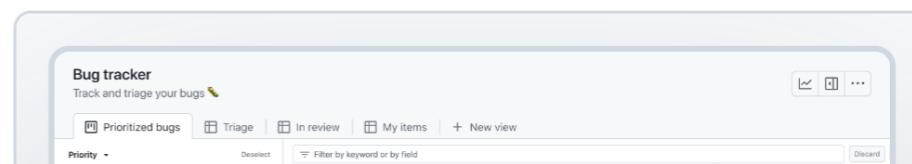
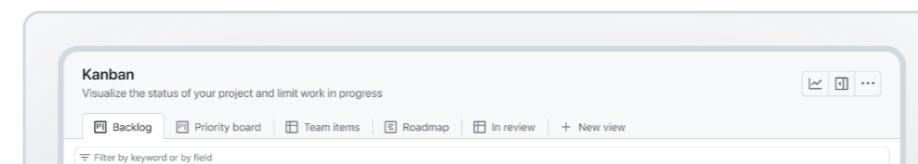
**Team planning** • GitHub

Manage your team's work items, plan upcoming cycles, and understand team capacity



**Feature release** • GitHub

Manage your team's prioritized work items when planning for a feature release



# Setting Up a GitHub Project - Project Name

← Create project X

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**New board**

Start with a board to spread your issues and pull requests across customizable columns. Easily switch to a table or roadmap layout at any time.

**Project name**

**Board**

Board    + New view

Filter by keyword or by field

Planning	Not Started	Building	Review
25 Estimate: 66	18 Estimate: 26	17 Estimate: 53	15 Estimate: 16
We're working through the details	This work hasn't started yet	Ongoing development	These need a review

github/OctoArcade 21 Estimate: 33

OctoArcade #40 Scoreboard epic Squad 2 High	OctoArcade #20 Schedule social media posts epic Squad 4 Medium	OctoArcade #46 Code the frontend Squad 4 Medium	OctoArcade #43 Develop an amazing website Squad 4 Medium
OctoArcade #44 Design the website Squad 4 Medium	OctoArcade #28 Finalize design content plan with team Squad 4 Medium	OctoArcade #47 Code the backend Squad 3 Medium	OctoArcade #21 Reach out to marketing team to determine final plan GA Launch Squad 3 Medium
OctoArcade #19 Social Media Campaign	OctoArcade #41 Online scoreboard	OctoArcade #37 Bug bash	OctoArcade #12 Doc updates for auto-add Squad 4 Low
OctoArcade #38 Create an amazing website	OctoArcade #13 Create doc content plan Squad 3 Medium	OctoArcade #16	OctoArcade #15 Review final PR from Steve Squad 3 Medium
OctoArcade #39 Create the design for login screen			

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**Create project**

# Setting Up a GitHub Project - Customize Layout

The screenshot shows a GitHub Project board titled "Customer Feedback Analysis". The board has three columns: "To Do" (0 items), "In Progress" (0 items), and "Done" (0 items). Each column has a description: "This item hasn't been started" for To Do, "This is actively being worked on" for In Progress, and "This has been completed" for Done. There are "Add item" buttons at the bottom of each column. The top navigation bar shows the project path "datacamp / Projects / Customer Feedback Analysis" and various project management icons.

# Setting Up a GitHub Project - Adding Tasks

The screenshot shows a GitHub Project board for the 'Customer Feedback Analysis' project. The board is organized into three columns based on task status:

- To Do (2 items):** This item hasn't been started.
  - Draft: Generate Report
  - Draft: Present Findings
- In Progress (2 items):** This is actively being worked on.
  - Draft: Clean Feedback Data
  - Draft: Analyze Sentiment
- Done (1 item):** This has been completed.
  - Draft: Collect Customer Feedback

At the bottom of each column, there is a '+ Add item' button. The top right of the board features a search bar, a 'Type /' to search input, and several project management icons. The top left shows the project path: datacamp / Projects / Customer Feedback Analysis.

# Setting Up a GitHub Project - Configuration Settings

The screenshot shows the GitHub Project interface for 'Customer Feedback Analysis'. A modal window titled 'Layout' is open, showing configuration options for the current 'Table' view. The modal includes sections for 'Configuration' (Fields, Column by, Group by, Sort by, Field sum, Slice by), 'Generate chart', and various save and delete options. The main project area shows two columns: 'To Do' (2 items) and 'Done' (1 item). The 'To Do' column contains items like 'Collect Customer Feedback' and 'Present Findings'. The 'Done' column contains an item 'Collect Customer Feedback'. A green box highlights the 'Layout' modal.

# Managing Project Visibility and Access

- **Visibility Settings:**
  - **Public:** Visible to everyone
  - **Private:** Restricted to team and collaborators
- **Access Roles:**
  - **Admin:** Full control (Head of data, senior colleagues)
  - **Write:** Can modify (Data team members)
  - **Read:** View only (Product team members)
  - **No Access** (Other departments)

# **Let's practice!**

**INTERMEDIATE GITHUB CONCEPTS**

# Automation and Insights in Projects

INTERMEDIATE GITHUB CONCEPTS



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# Importance of Automation and Insights

## GitHub Actions:

- **Streamlines:** Automates workflows
- **Automation:** Simplifies processes

## Insights:

- **Real-time data:** Tracks progress
- **Spot issues:** Spot bottlenecks
- **Smart choices:** Informs decisions

# Automation Tools in GitHub Projects

## Built-in Automations:

- ❑ Auto-move tasks based on events
- ❑ Keep boards updated automatically

## GitHub Actions:

- ❑ Automate complex workflows
- ❑ Tag and manage tasks efficiently

# Implementing Built-in Automations

The screenshot shows the GitHub Projects interface. At the top, there's a navigation bar with links for Overview, Repositories, Projects (which is underlined), Packages, Teams, and People. To the right of the navigation is a search bar with placeholder text "Type ⌘ to search" and various icons for filtering and searching. On the left, a sidebar titled "Recently viewed" lists "Created by me", "Projects", and "Templates". Below this is a link "Looking for projects (classic)?". In the center, a large box says "Welcome to projects" with the text: "Built like a spreadsheet, project tables give you a live canvas to filter, sort, and group issues and pull requests. Tailor them to your needs with custom fields and saved views." A "Learn more" button is below this. To the right is a "Project board" visualization showing cards for "Initial concept art", "Engine prototype (graphics, rendering)", "Game brief and go-live", and "Prototype". At the bottom of the board are buttons for "Add Rows" and "Edit". Below the board is a search bar with the query "isopen" and a "New project" button. A section titled "1 recently viewed" shows a card for "Customer Feedback Analysis" which is private and was updated yesterday.



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# Advanced Automation with GitHub Actions

- **Automate workflows:** Trigger tasks on code events
- **YAML-powered:** Define actions in YAML files
- **Common tasks:** Schedule data pipelines or deploy ML models

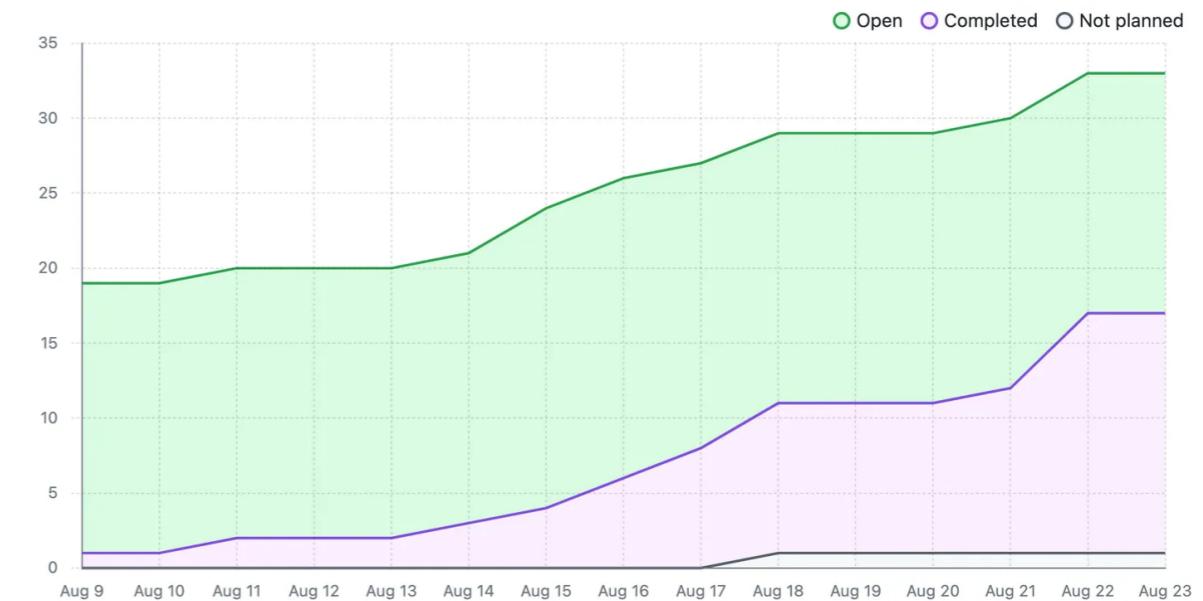
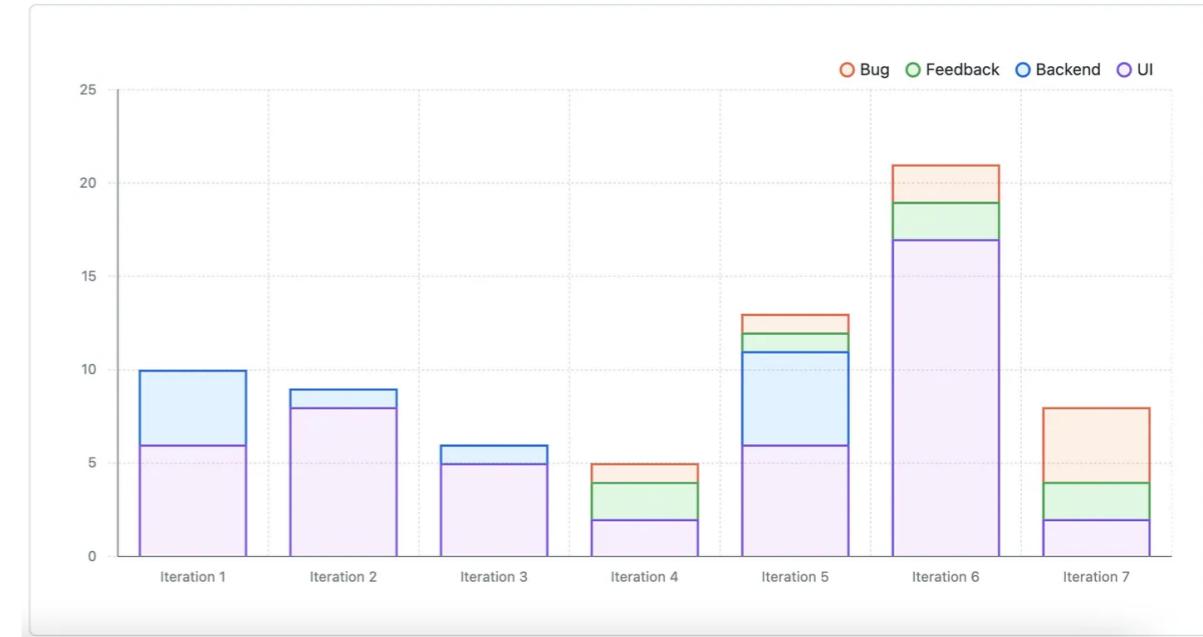
```
name: Data Workflow
on: [push]

jobs:
  run-analysis:
    runs-on: ubuntu-latest
    steps:
      - uses: actions/checkout@v4
      - name: Run analysis
        run: python analyze_data.py
```

<sup>1</sup> <https://docs.github.com/en/actions>

# Introduction to Project Insights

- ❑ **Visualize progress:** Real-time and historical data charts
- ⚠ **Spot bottlenecks:** Identify issues early with insights
- ❑ **Chart types:** Includes both Current and Historical charts



# Creating a Chart in Project Insights

The screenshot shows a Project Insights board titled "Customer Feedback Analysis". The board is organized into three columns based on status: "To Do", "In Progress", and "Done".

- To Do:** Contains two items, both marked as "Draft":
  - "Generate Report" (Due Aug 22, 2024)
  - "Present Findings" (Due Aug 30, 2024)
- In Progress:** Contains two items, both marked as "Draft":
  - "Clean Feedback Data" (Due Aug 14, 2024)
  - "Analyze Sentiment" (Due Aug 16, 2024)
- Done:** Contains one item, marked as "Done":
  - "Collect Customer Feedback" (Due Aug 8, 2024)

The board includes a search bar at the top right, a toolbar with various icons, and buttons for "View 1", "New view", "Filter by keyword or by field", "Discard", and "Save".

# **Let's practice!**

**INTERMEDIATE GITHUB CONCEPTS**