

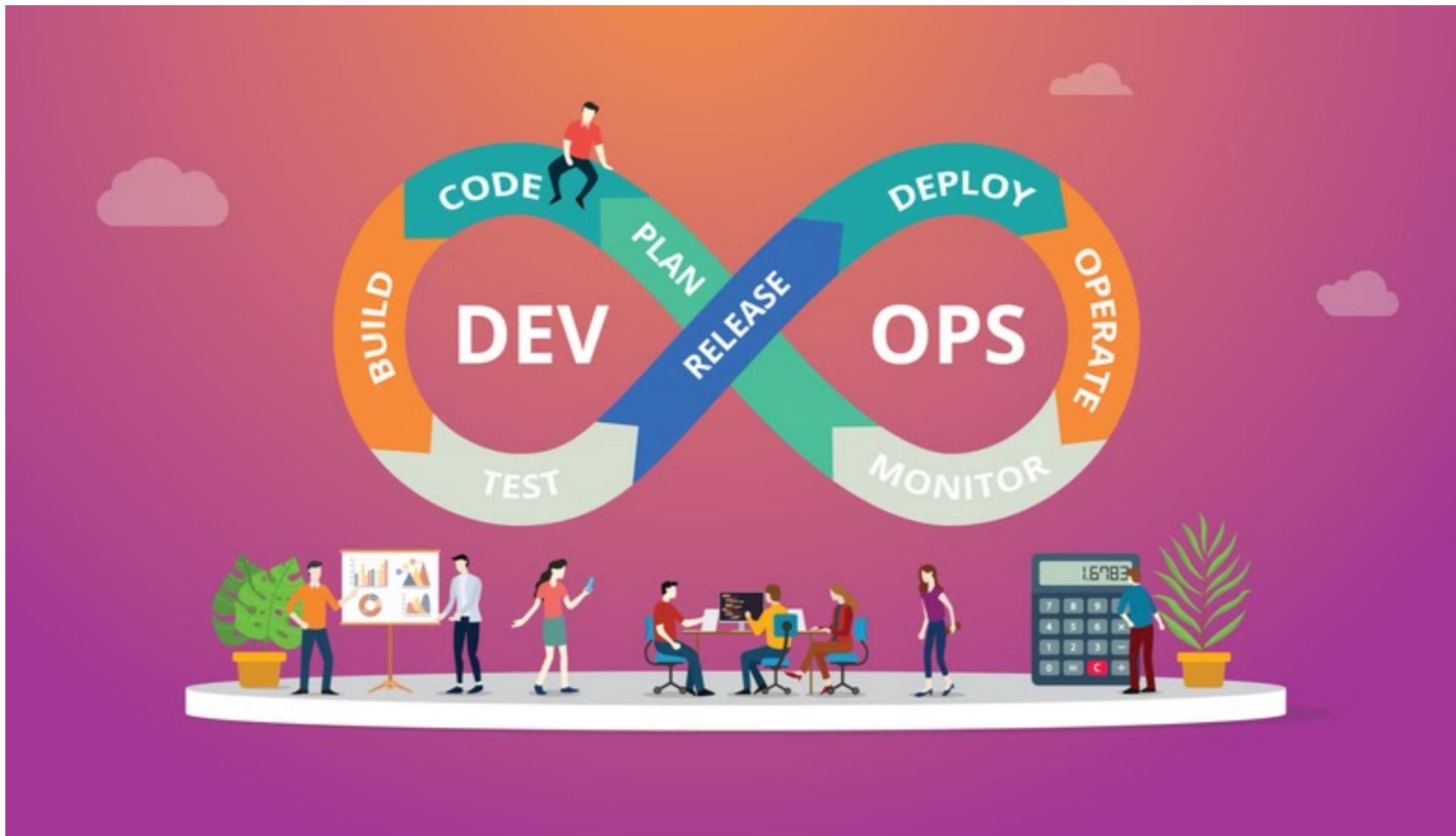
# **Low code and No code Workshop**



# **Low Code and No Code (LCNC)**

# **Software Development**

# Software Development Life Cycle



# Need more people !!

## 6 Phases of the Software Development Life Cycle



# Developer roadmap

NEW Generate visual roadmaps with AI

## Developer Roadmaps

roadmap.sh is a community effort to create roadmaps, guides and other educational content to help guide developers in picking up a path and guide their learnings.

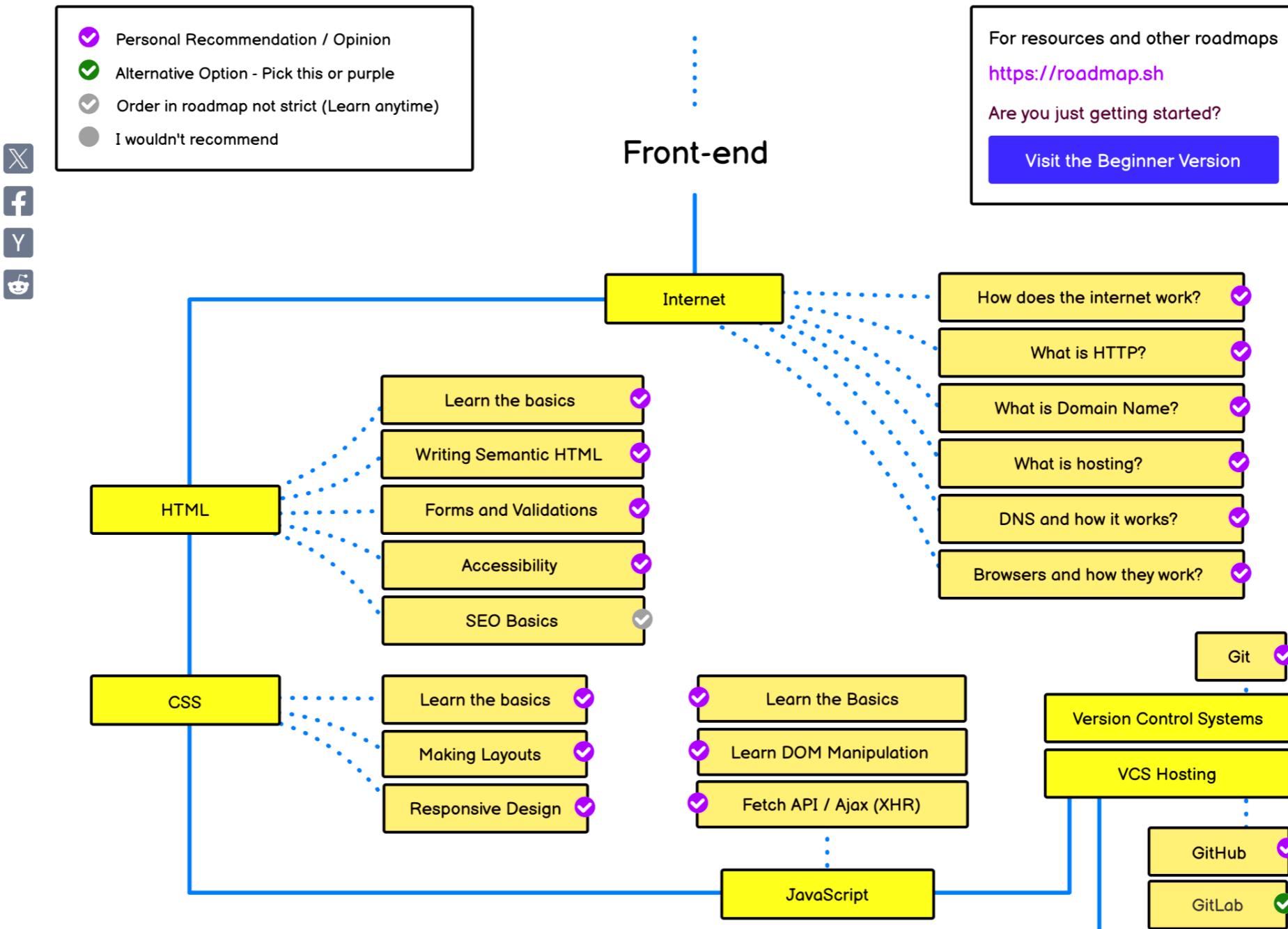
Role based Roadmaps

- Frontend
- Backend
- DevOps
- Full Stack
- AI and Data Scientist
- Data Analyst
- Android
- iOS
- PostgreSQL

The screenshot shows the homepage of roadmap.sh. At the top, there's a purple button labeled "NEW Generate visual roadmaps with AI". Below it is a large, bold title "Developer Roadmaps". A subtitle explains that roadmap.sh is a community effort to create roadmaps, guides, and educational content to help developers learn. A central heading "Role based Roadmaps" is followed by a grid of nine boxes, each representing a developer role: Frontend, Backend, DevOps, Full Stack, AI and Data Scientist, Data Analyst, Android, iOS, and PostgreSQL. Each box has a bookmark icon and some are marked as "New".

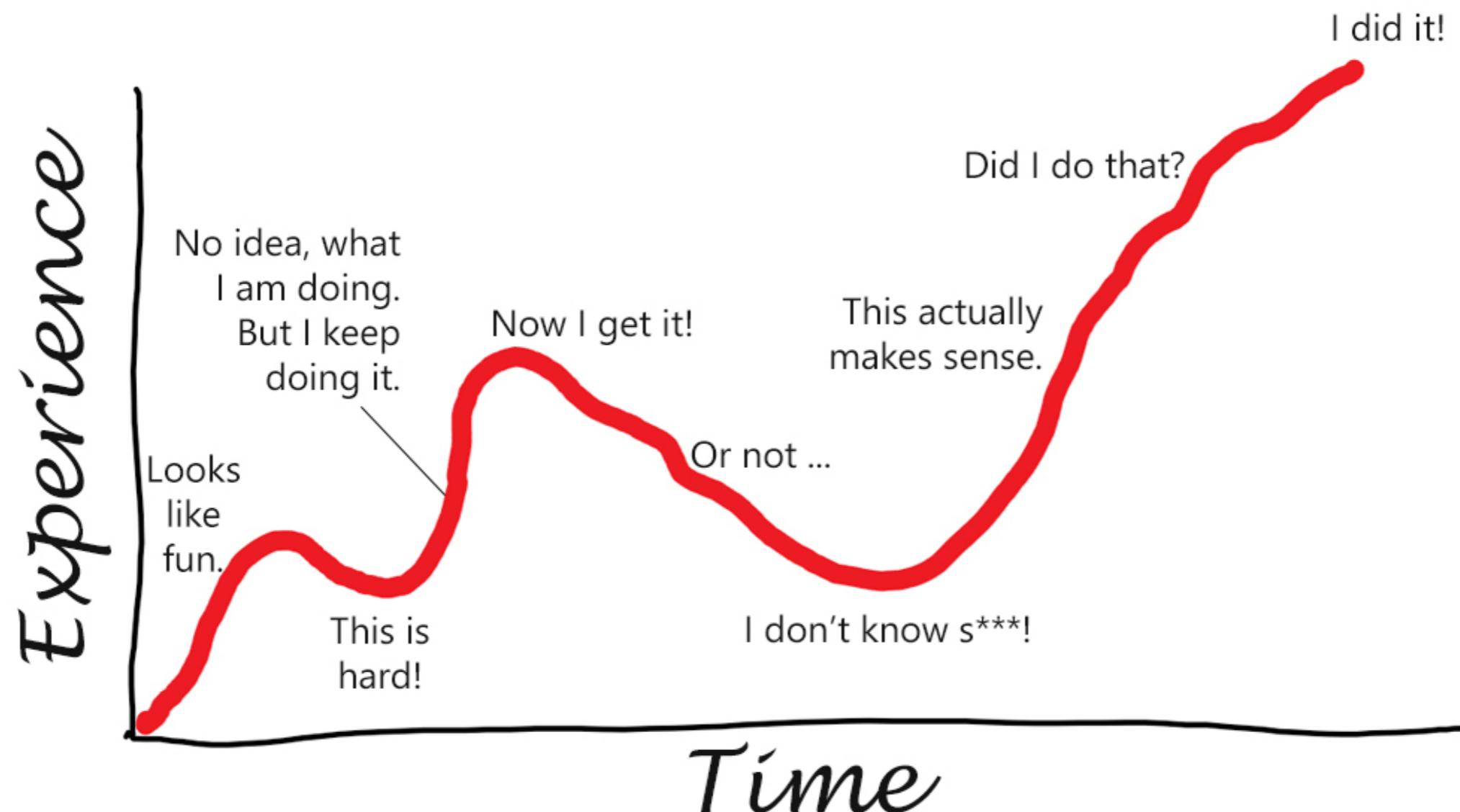
<https://roadmap.sh/>

# Frontend developer



<https://roadmap.sh/frontend>

# Learning Curve !!



**“You don’t have programmer”**

# No Code

Build applications with visual interface

Drag-and-drop

Develop without writing code

Develop without any programming experience

Focus on speed to deliver application

Empowering non-technical users

Visual modeling  
tools

Pre-build template

# No Code

Design with modulars like Lego



# Low Code

Requires some coding experiences

Focus on customization and flexible

Moderate learning curve

Focus on technical people

Integration with existing system

# Low Code guideline

## THE DEFINITIVE GUIDE TO LOW-CODE DEVELOPMENT

- 1 What is low-code?
- 2 Low-code features and benefits
- 3 Low-code comparison
- 4 Who can build with low-code?
- 5 How to pick a low-code platform
- 6 The future of low-code

0



<https://www.mendix.com/low-code-guide/>

# Gartner Magic Quadrant for Enterprise Low-Code 2023



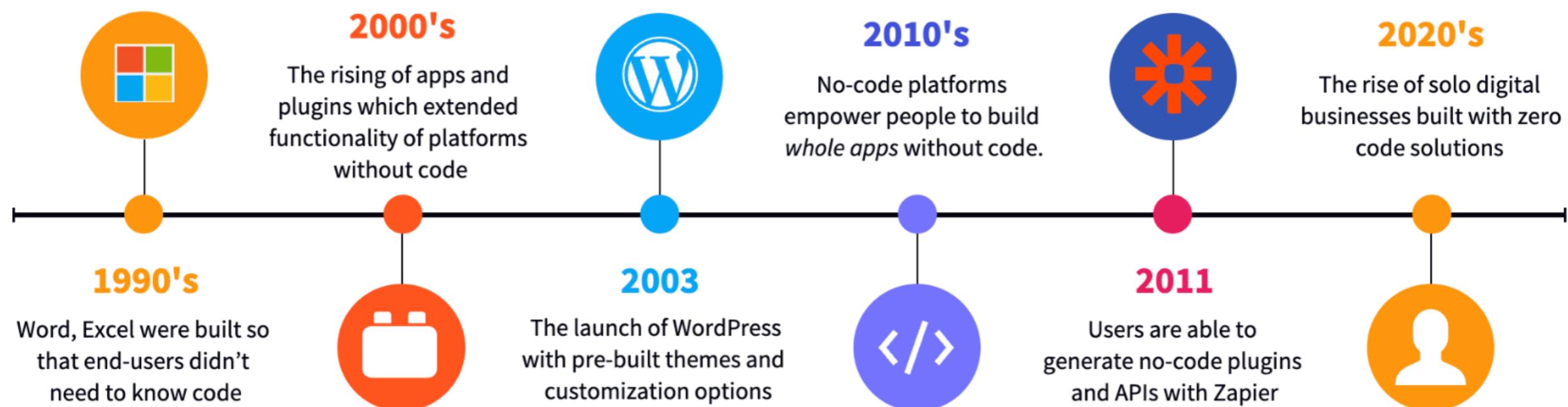
<https://www.gartner.com/en/documents/4843031>

# Low Code vs No Code

	Low Code	No Code
<b>Target person</b>	Developer	Business
<b>Main objective</b>	Speed of development	Ease of use
<b>Coding skill</b>	Low, but required	No coding
<b>Customization</b>	Yes	Pre-build template Yes
<b>Platform lock-in</b>	Easy to move	Yes
<b>Purpose</b>	Rapid development tool for professional developer	Self-service application for business user
<b>App complexity</b>	Yes	No

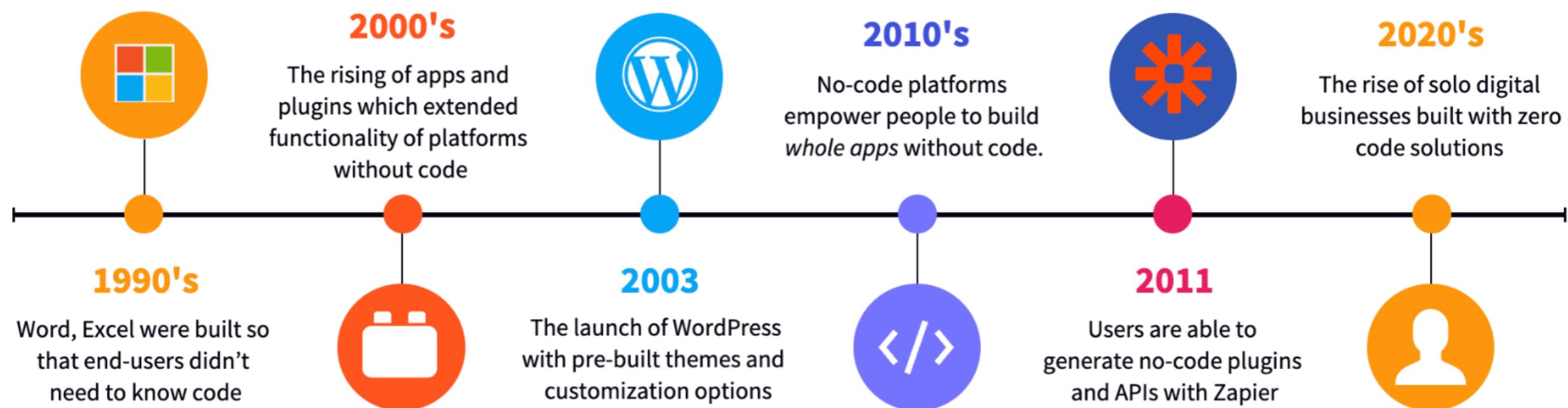
# Evolution of LCNC

## SHORT HISTORY



# Evolution of LCNC

## SHORT HISTORY



Rapid Application Development (RAD)

Business Process Management (BPM)

Low code and No code

# Why we need ?

Increase speed development

Reduce need for skilled developers

Lower cost

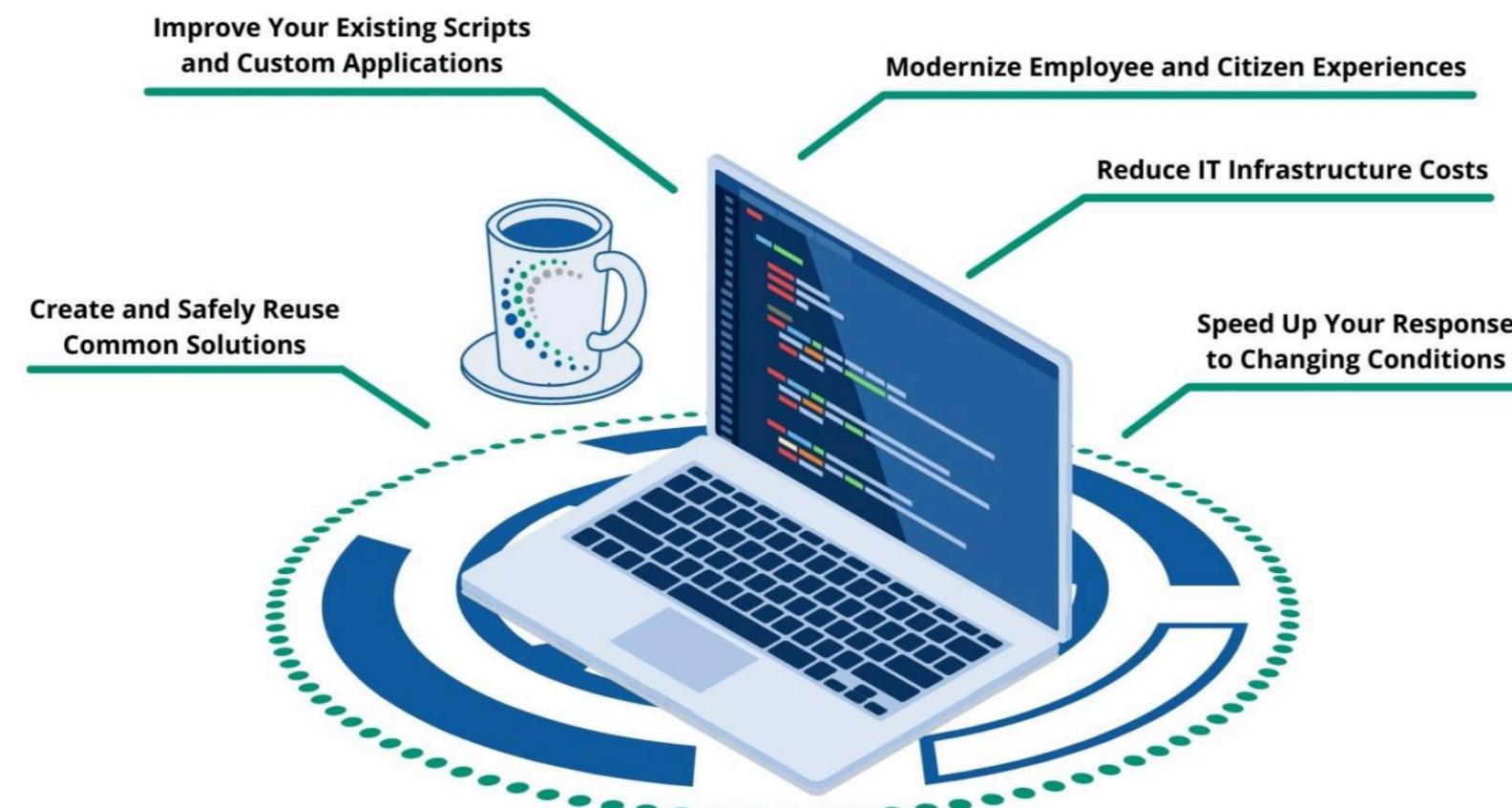
Increase accessibility

Improve agility

Encourage innovation

# Benefits

Efficiency, Cost  
Integration  
Flexibility  
Rapid development



# Benefits

Easier collaboration between develop and business  
Technical vs Non-technical



# Limitation !!

Not suitable for complex application  
High degree of customization  
Subscription fees  
Code quality and best practices  
Dependency in platform provider  
Performance

# Concerns !!

Scalability

Security

Lack of quality

Customization

Need for expertise

# Not for core business !!

Core

Generic

Support

# LCNC Use-cases

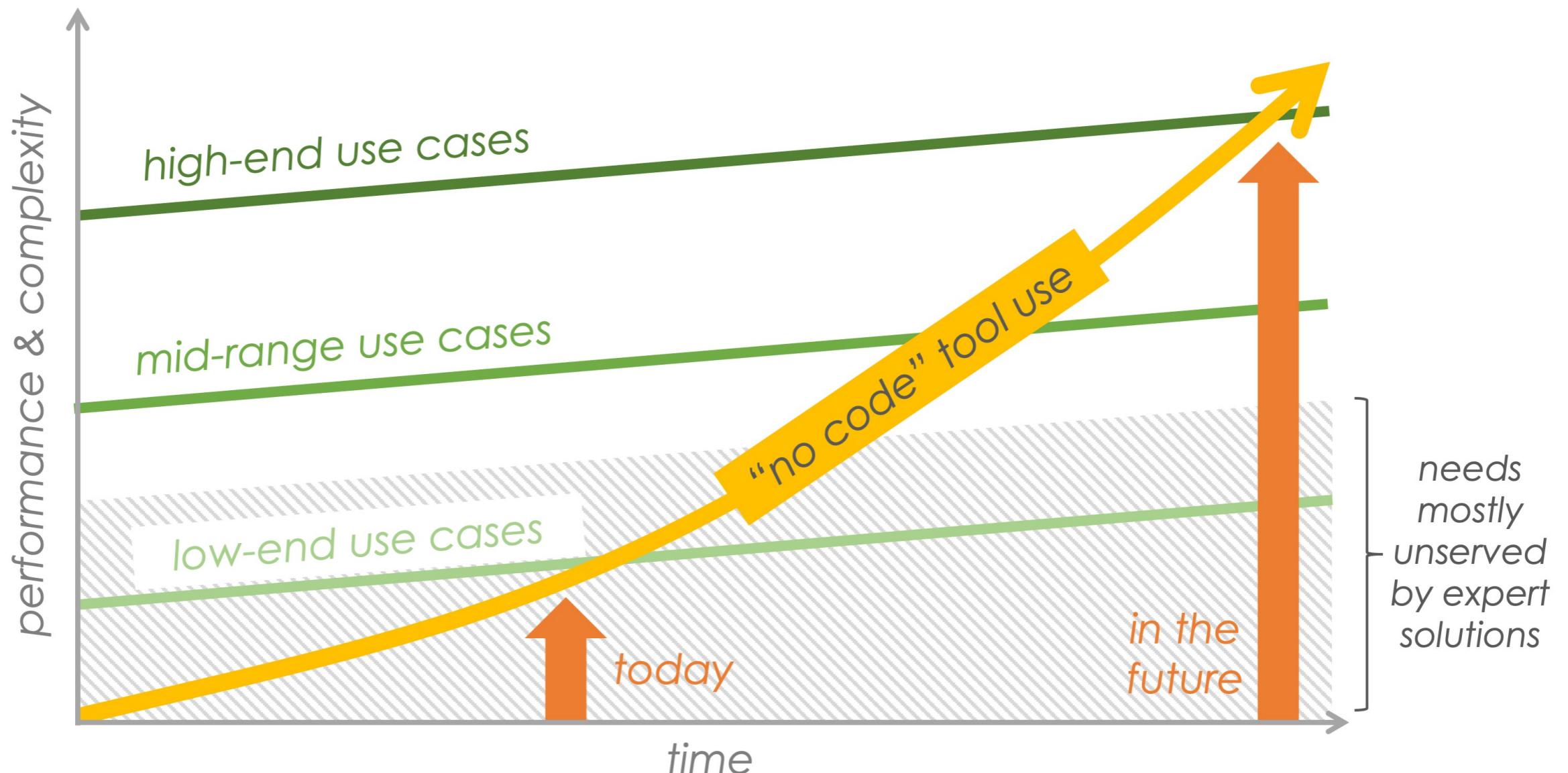
Internal application

Rapid Application Development

Business Process Automation (BPA)

Reduce cost !!

# LCNC Use-cases



# Tools ?

Microsoft  
PowerApps



mx mendix  
Go make it™

Webflow

AppSheet

UiPath™

Airtable

Dialogflow

\_zapier

Akkio

# Tools ?

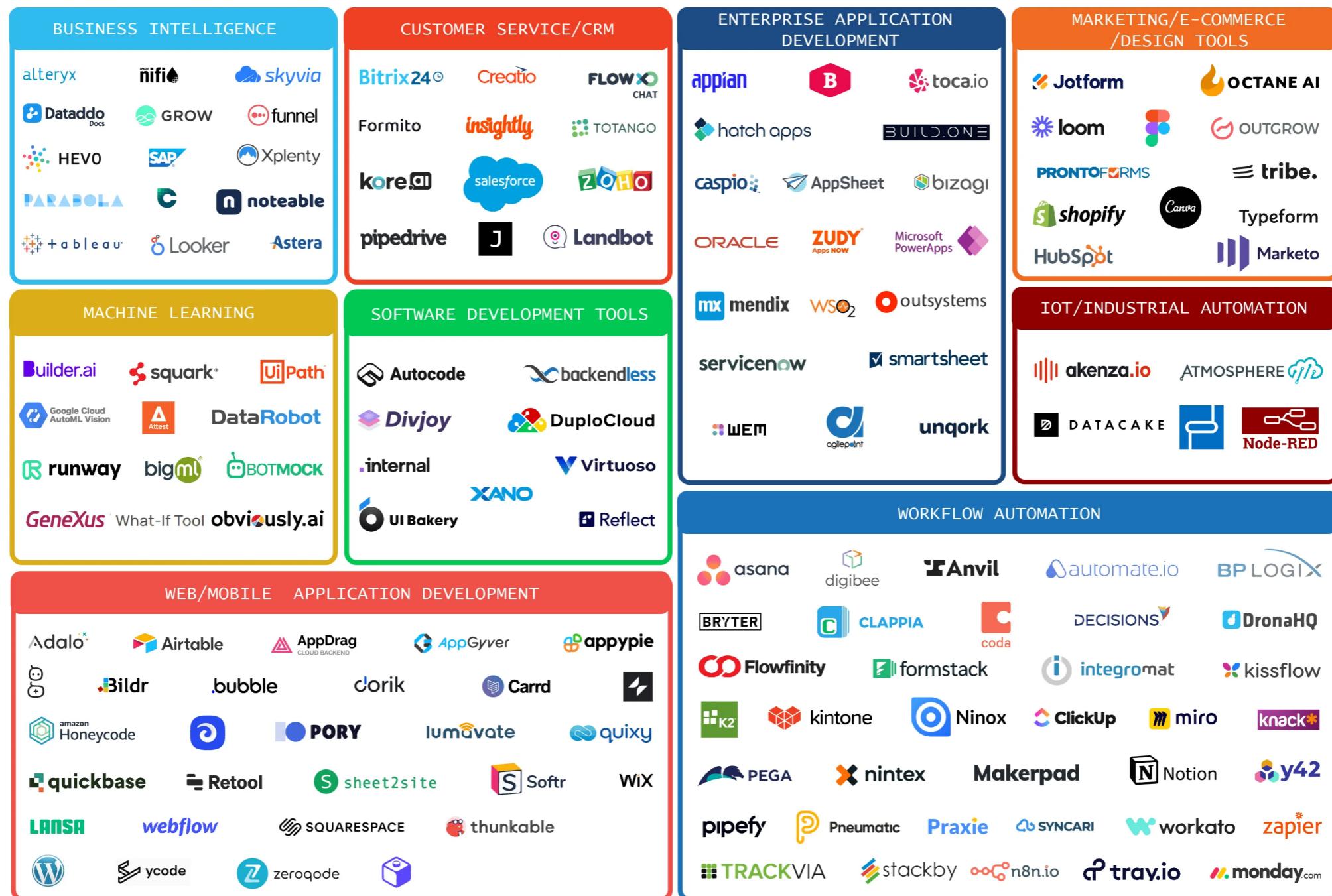


WORDPRESS



# Ecosystem of tools

## LOW-CODE/NO-CODE PLATFORM ECOSYSTEM



March 2022 - [medium.com/@unigram\\_labs](https://medium.com/@unigram_labs)

# How to choose tools ?

Based-on your requirements

Drag & Drop  
interface

Visual  
modeling tool

Template and  
prototype

Cross  
platform

Integration  
capability

Scalability

Security  
features

Automation  
testing

Report and  
analytic

# **How to build app with LCNC ?**

# Process

Define the scope

Talk to potential users

**Create wireframe**

Start building

Inspect and adapt

# Wireframe tools

The screenshot shows the Figma website homepage. At the top, there is a navigation bar with links for Products, Solutions, Community, Resources, Pricing, Contact sales, and Log in. Below the navigation bar, a large heading reads "How you design 🖤, align 💪, and build 🚀 matters. Do it together with Figma." A prominent blue button labeled "Get started" is located below the heading. The main content area features a wireframe of a product management interface. The interface includes a header with icons for file operations, a search bar, and user profiles. Below the header, there are sections for "Design updates" (with a starburst icon) and "Producer". A "Filters (4)" section is visible. On the right side, there is a "Developer" role with a thumbs-up icon and a "Researcher" role. A callout bubble contains the text "Does this pairing meet" and "ALIGN FILTER ORDER TO DATA". The bottom right corner of the wireframe has the text "Let's run a test".

<https://www.figma.com/>

# **Start with Low code and No code**

# Requirements

## Task management

Tasks

Responsible Person

Time

Members in team

# **Learning by doing**

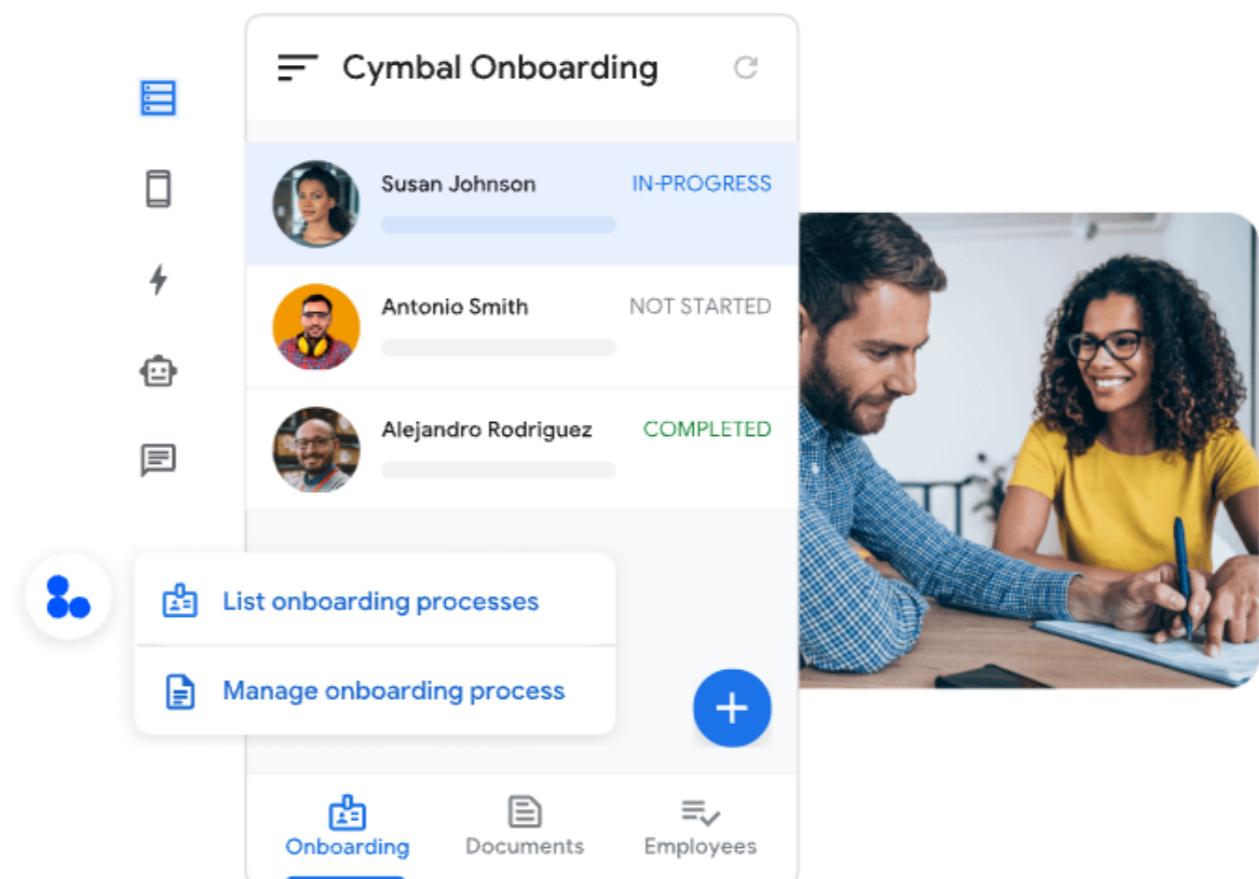
# **Google AppSheet**

# Google AppSheet

Supercharge  
your work with  
no-code

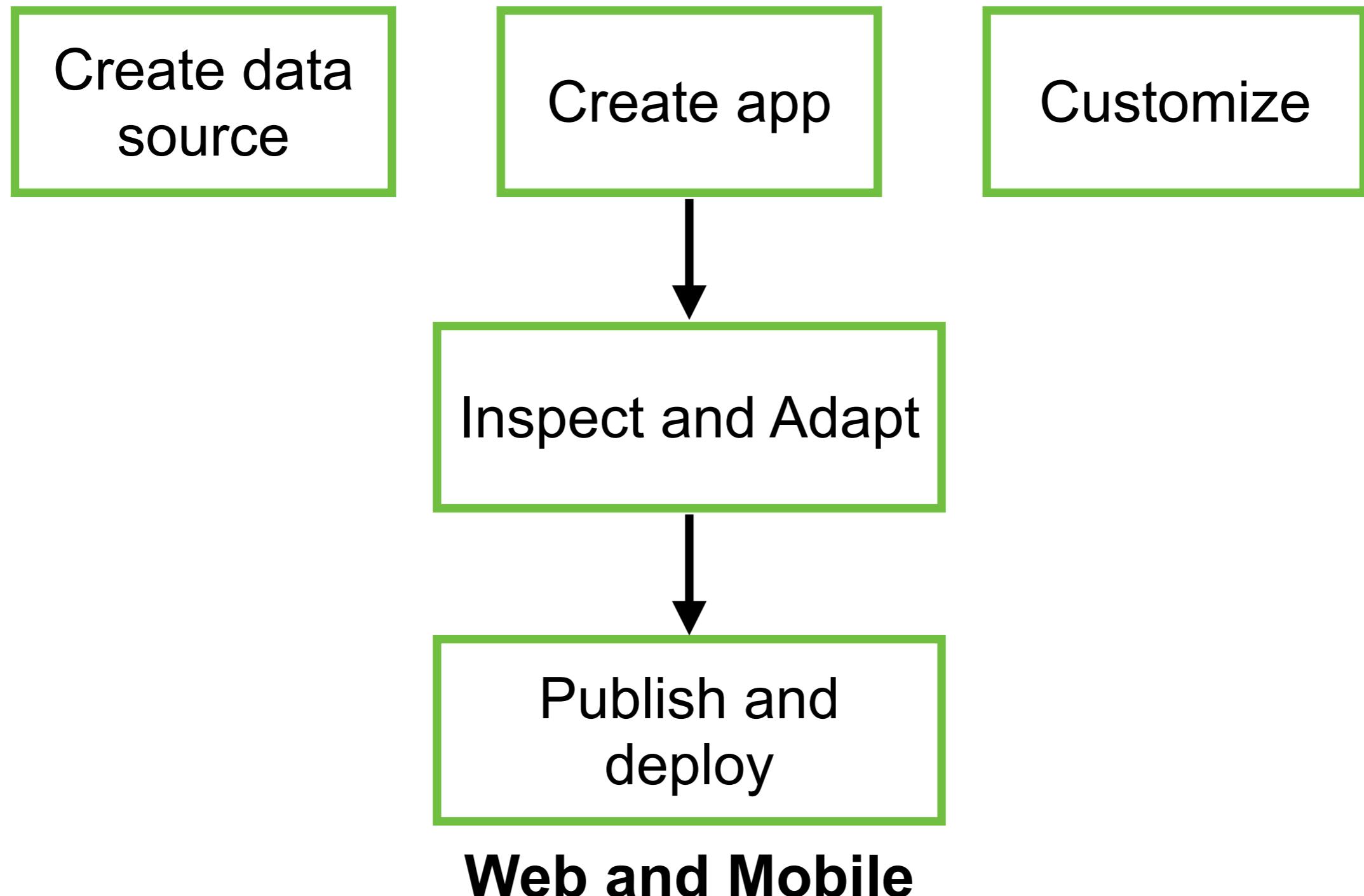
AppSheet helps you build powerful applications and automations that boost productivity. No coding required.

Get started



<https://www.appspot.com/>

# Steps



# Step 1

Create data source in Google Sheet (one-to-many)

## Members table

	A	B	C	D	E	
1	Email	Firstname	Lastname	Mobile number	Responsibility	
2						
3						
4	PK					
5						
6						
7						
8						
9						
10						

+   ≡    Members ▾    Tasks ▾

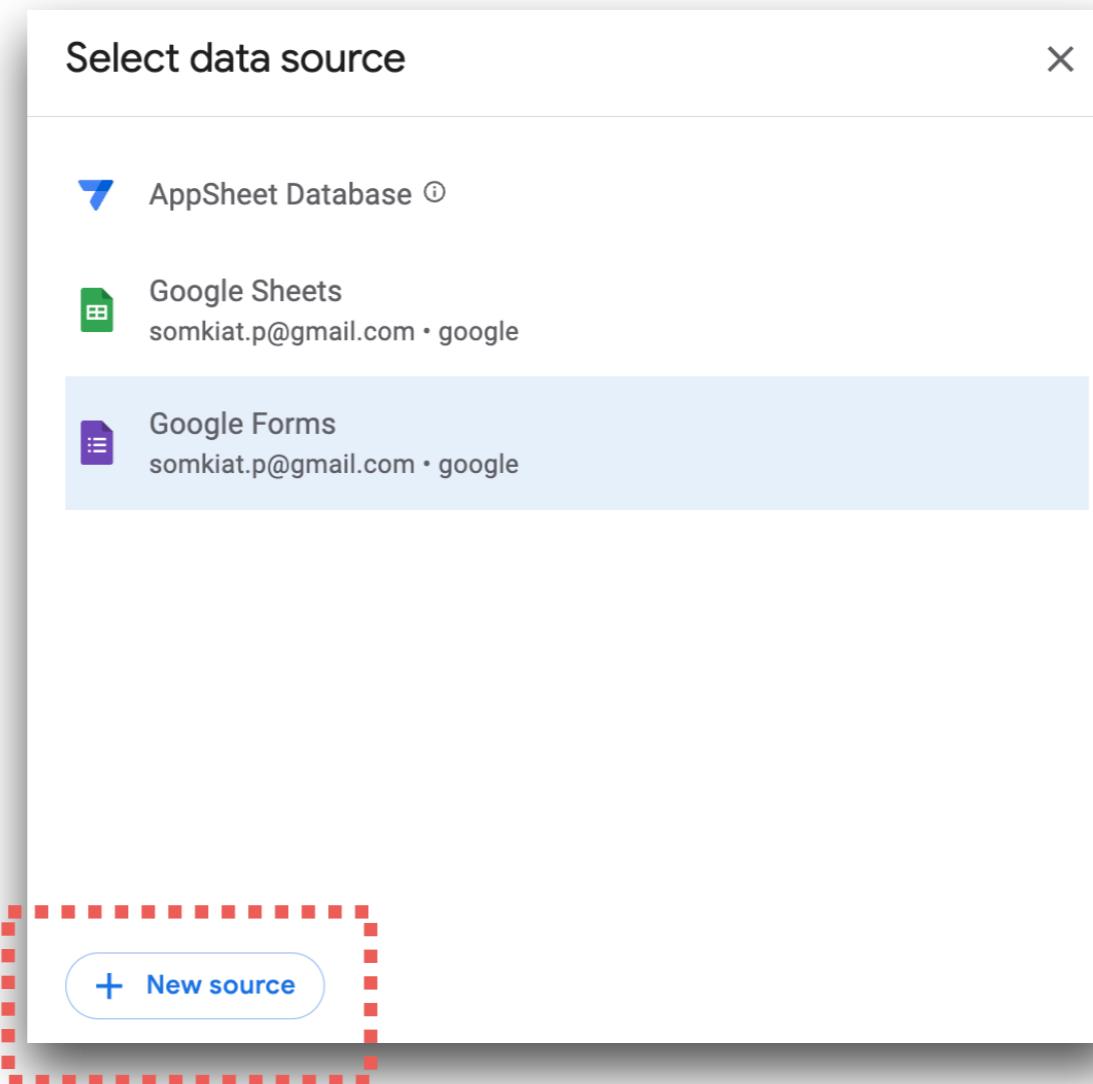
## Tasks table

	A	B	C	D	
1	Task	Members	time	status	
2					
3					
4					
5					
6					
7	FK				
8					
9					
10					

+   ≡    Members ▾    Tasks ▾

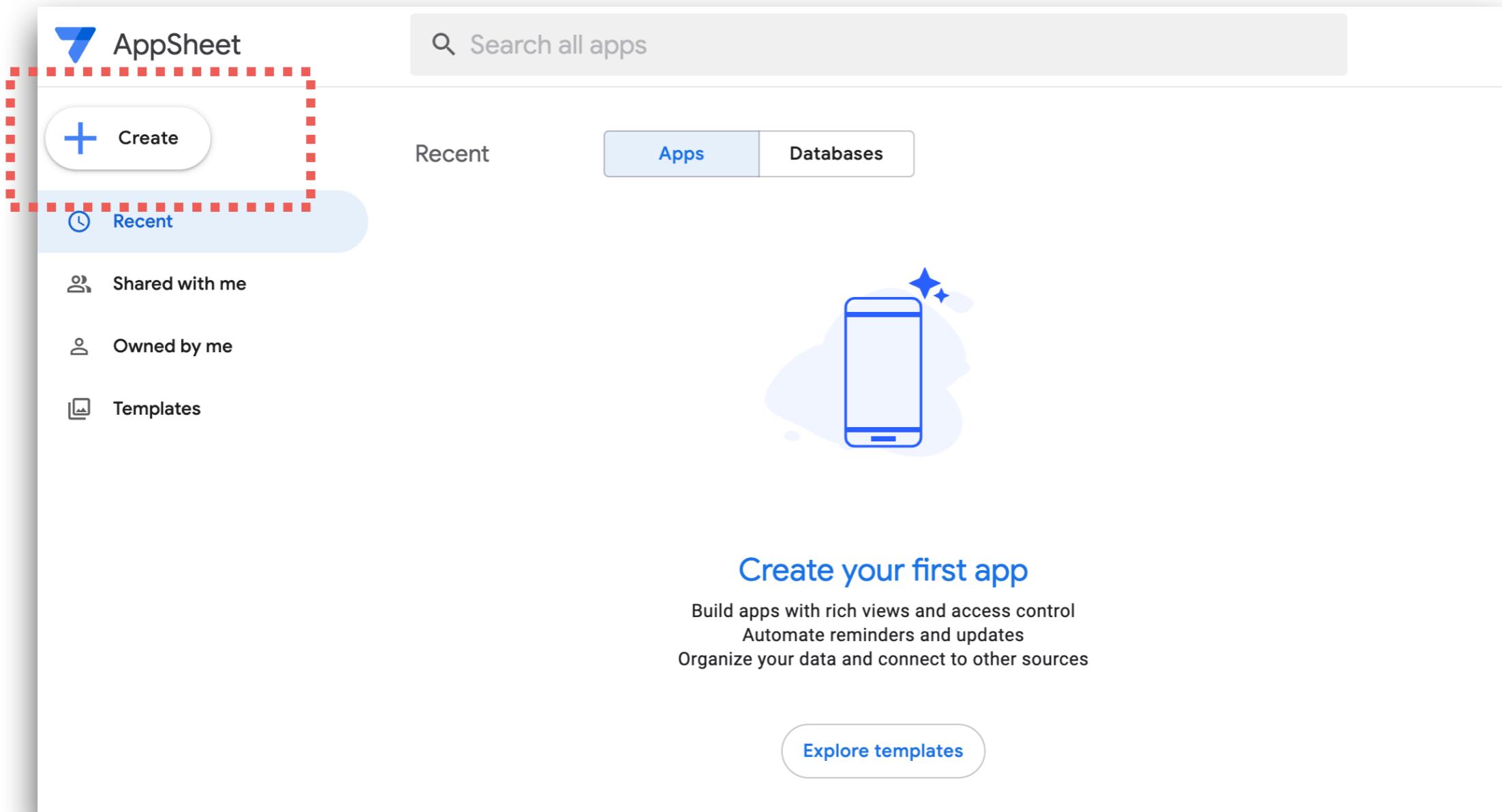
# Datasource in AppSheet

## AppSheet Database Existing Database



# Step 2

## Create app in AppSheet



# Step 3

## Choose type of your app

Create a new app

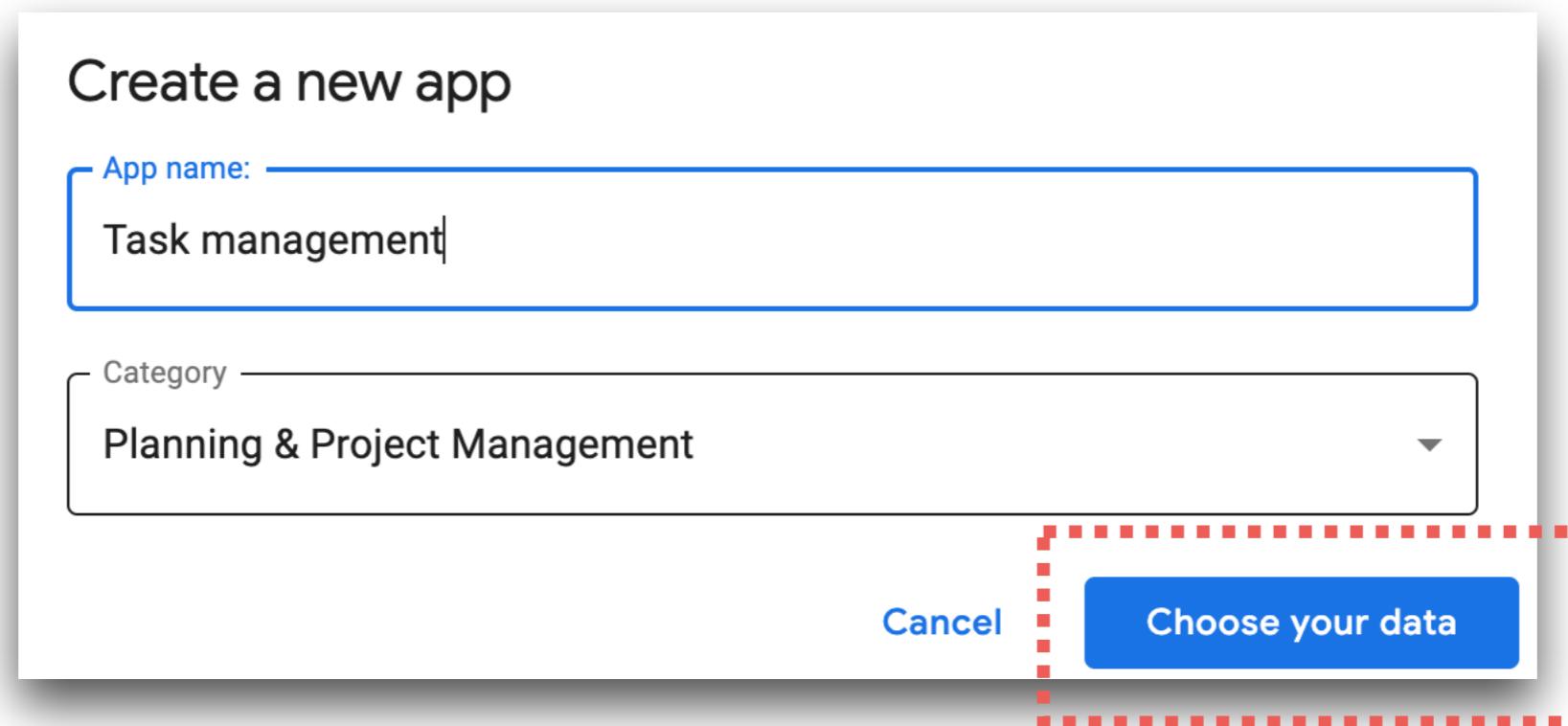
App name:

Category

[Cancel](#) [Choose your data](#)

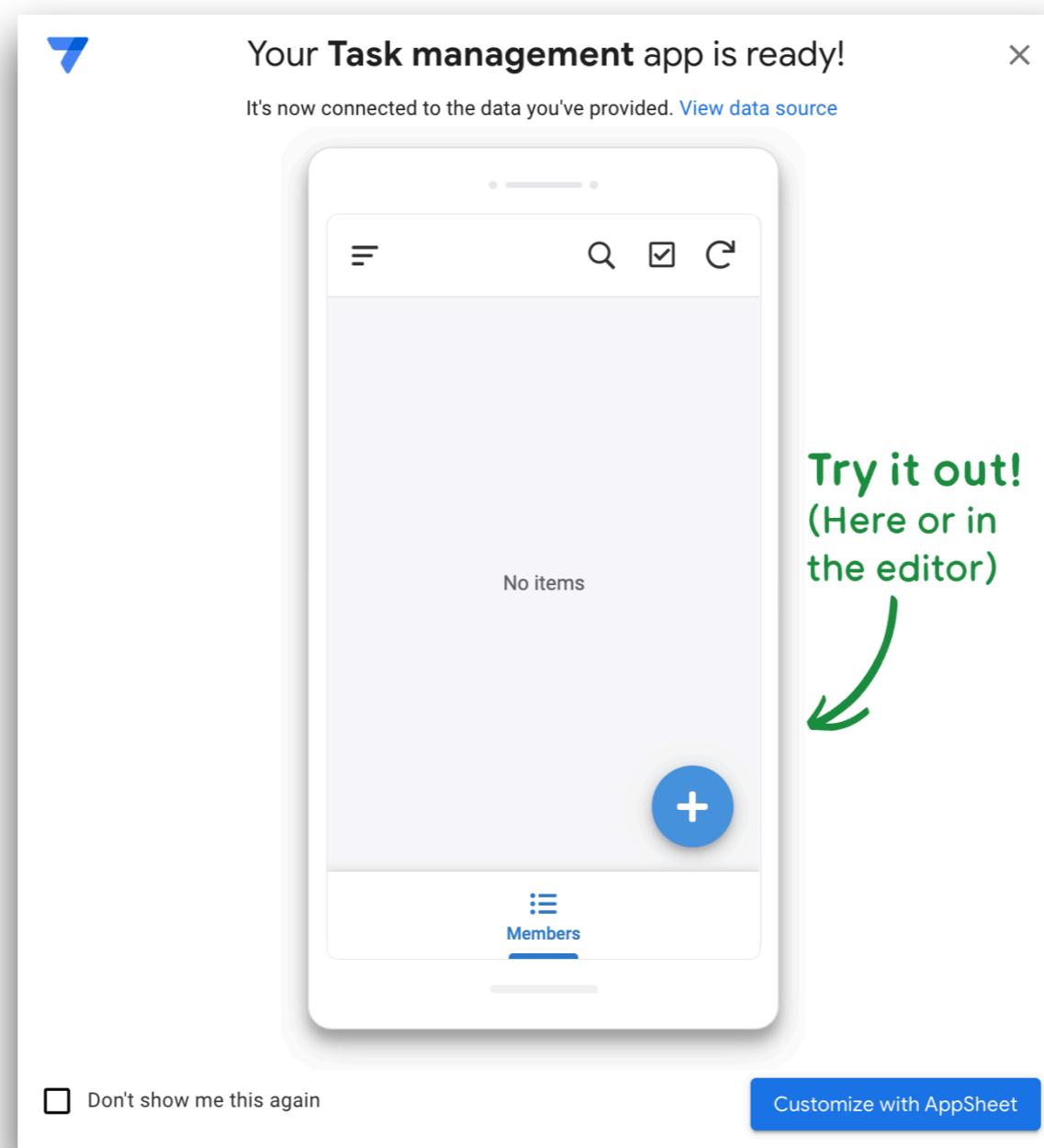
# Step 4

## Choose your data (working with Google sheet)



# Step 5

## Customize your app



# Manage Data

## Data

Task management

Data Table: Members

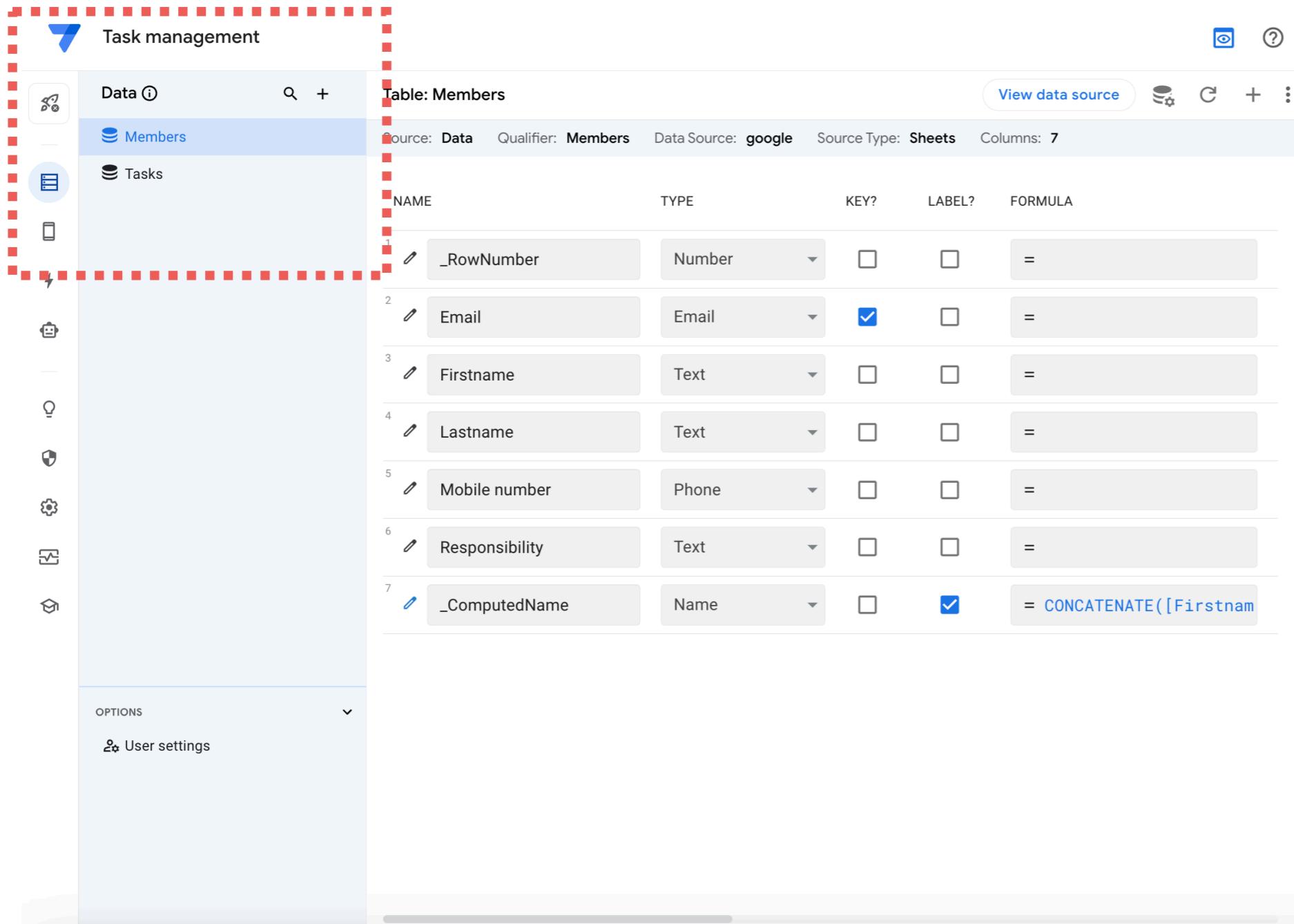
Source: Data Qualifier: Members Data Source: google Source Type: Sheets Columns: 7

View data source

	NAME	TYPE	KEY?	LABEL?	FORMULA
1	_RowNumber	Number	<input type="checkbox"/>	<input type="checkbox"/>	=
2	Email	Email	<input checked="" type="checkbox"/>	<input type="checkbox"/>	=
3	Firstname	Text	<input type="checkbox"/>	<input type="checkbox"/>	=
4	Lastname	Text	<input type="checkbox"/>	<input type="checkbox"/>	=
5	Mobile number	Phone	<input type="checkbox"/>	<input type="checkbox"/>	=
6	Responsibility	Text	<input type="checkbox"/>	<input type="checkbox"/>	=
7	_ComputedName	Name	<input type="checkbox"/>	<input checked="" type="checkbox"/>	= CONCATENATE([Firstnam

OPTIONS

User settings



## Preview app

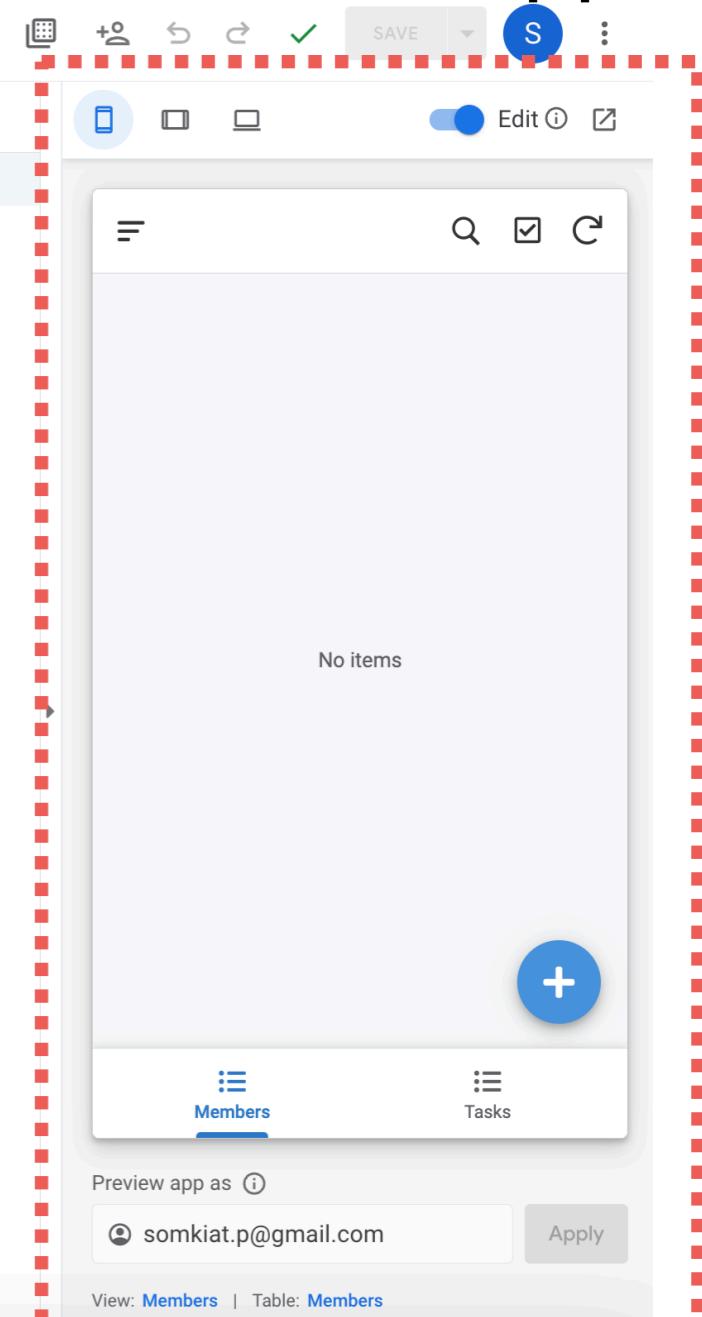
Edit

No items

Members Tasks

Preview app as somkiat.p@gmail.com

View: Members | Table: Members



# Manage Data of Task

## Reference to members table

Table: Tasks

Source: Data Qualifier: Tasks Data Source: google Source Type: Sheets Columns: 5

NAME	TYPE	KEY?	LABEL?	FORMULA
1  _RowNumber	Number	<input type="checkbox"/>	<input type="checkbox"/>	=
2  Task	Text	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	=
3  Members	Ref	<input type="checkbox"/>	<input type="checkbox"/>	=
4  time	Time	<input type="checkbox"/>	<input type="checkbox"/>	=
5  status	Enum	<input type="checkbox"/>	<input type="checkbox"/>	=

# Manage Data of Task

Statuses of task (unassign, assign, done)

Table: Tasks

Source: Data Qualifier: Tasks Data Source: google Source Type: Sheets Columns: 5

	NAME	TYPE	KEY?	LABEL?	FORMULA
1	<input type="text"/> _RowNumber	Number	<input type="checkbox"/>	<input type="checkbox"/>	=
2	<input type="text"/> Task	Text	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	=
3	<input type="text"/> Members	Ref	<input type="checkbox"/>	<input type="checkbox"/>	=
4	<input type="text"/> time	Time	<input type="checkbox"/>	<input type="checkbox"/>	=
5	<input type="text"/> status	Enum	<input type="checkbox"/>	<input type="checkbox"/>	=

# Manage Data of Task

## Status of task (unassign, assign, done)

Tasks : status  
type: Enum

Done ▾

Column name: status  
Should match the column name in the data source

Go to display options ⓘ

Show?:  ✖

Type: Column data type: Enum

Type Details

Values

- Unassign ✖
- Assigned ✖
- Done ✖

Add

Allow other values

Auto-complete other values

# Custom Views

## 1. View

The screenshot shows the Zoho Creator interface for creating a new view named 'Members'. The left sidebar lists various view types: Task management, PRIMARY NAVIGATION (Members selected), MENU NAVIGATION, and REFERENCE VIEWS. The main area displays configuration options for the 'Members' view, including:

- View name:** Members
- For this data:** Members
- View type:** What kind of view this is. Options include calendar, deck, table, gallery, detail, map, chart, dashboard, form (selected), onboarding, and card.
- Position:** Where the button to access this view is located. Options include first, next, middle (selected), later, last, menu, and ref.
- View Options:**
  - Row key:** Only edit one specific row, identified by this key. Input field: =
  - Page style:** How form pages are displayed. Options: Automatic (selected), Simple, Page Count, Tabs.
  - Form style:** How form inputs are displayed. Options: Automatic (selected), Default, Side-by-side.
  - Column order:** Display columns in a different order. Options: Automatic (selected), Manual.

At the bottom right, there are 'Cancel' and 'Save' buttons, and a preview app section with an email input field (somkiat.p@gmail.com) and an 'Apply' button.

## 2. View types

## 3. Preview app

The screenshot shows a preview app for the 'Members' view. The form includes fields for Email\*, Firstname, Lastname, Mobile number, and Responsibility. At the bottom are 'Cancel' and 'Save' buttons, along with a preview app as section and an 'Apply' button.

# Flow of application

## 1. Home

The home screen features a light gray background with a top navigation bar containing a menu icon and a back arrow icon. At the bottom, there are two large, semi-transparent buttons: one labeled "Members" with a list icon, and another labeled "Tasks" with a list icon.

## 2. Add member

This screen shows a form for adding a new member. It includes fields for "Email\*" (with a placeholder " "), "Firstname", "Lastname", "Mobile number", and "Responsibility". Each field is enclosed in a blue-bordered input box. At the bottom, there are "Cancel" and "Save" buttons, with "Save" being blue and bold.

## 3. Add task

This screen shows a form for adding a new task. It includes fields for "Task\*", "Members" (a dropdown menu), "time" (a text input showing "21:20:04" with a clock icon), and "status" (a dropdown menu). At the bottom, there are "Cancel" and "Save" buttons, with "Save" being blue and bold.

# Step 6

## Deployment check

The screenshot shows a user interface for a deployment check. On the left, a sidebar titled "Manage" has a "Deploy" section selected, indicated by a blue background. Below it are "Versions", "Monitor", and "Collaborate & Publish". The main area is titled "Deploy" and contains a "Deployment Check" section with the message: "You should run and pass this check before you use the app in a non-prototype setting". It states: "Your app Task management is a **prototype**". A blue button labeled "Run deployment check" is present. Below this are three sections: "Branded Apps" (with the note "You can convert your app into a custom branded mobile app in the iTunes and Google Play stores"), "Plan requirements" (with the note "Understand why this app requires a specific subscription plan"), and "Broadcast Notifications" (with the note "Broadcast notifications to your users"). At the bottom are two buttons: "Pause app" and "Switch to recovery mode".

Manage

Deploy

Deployment Check

You should run and pass this check before you use the app in a non-prototype setting

Your app Task management is a **prototype**.

Run deployment check

Branded Apps

You can convert your app into a custom branded mobile app in the iTunes and Google Play stores

Plan requirements

Understand why this app requires a specific subscription plan

Broadcast Notifications

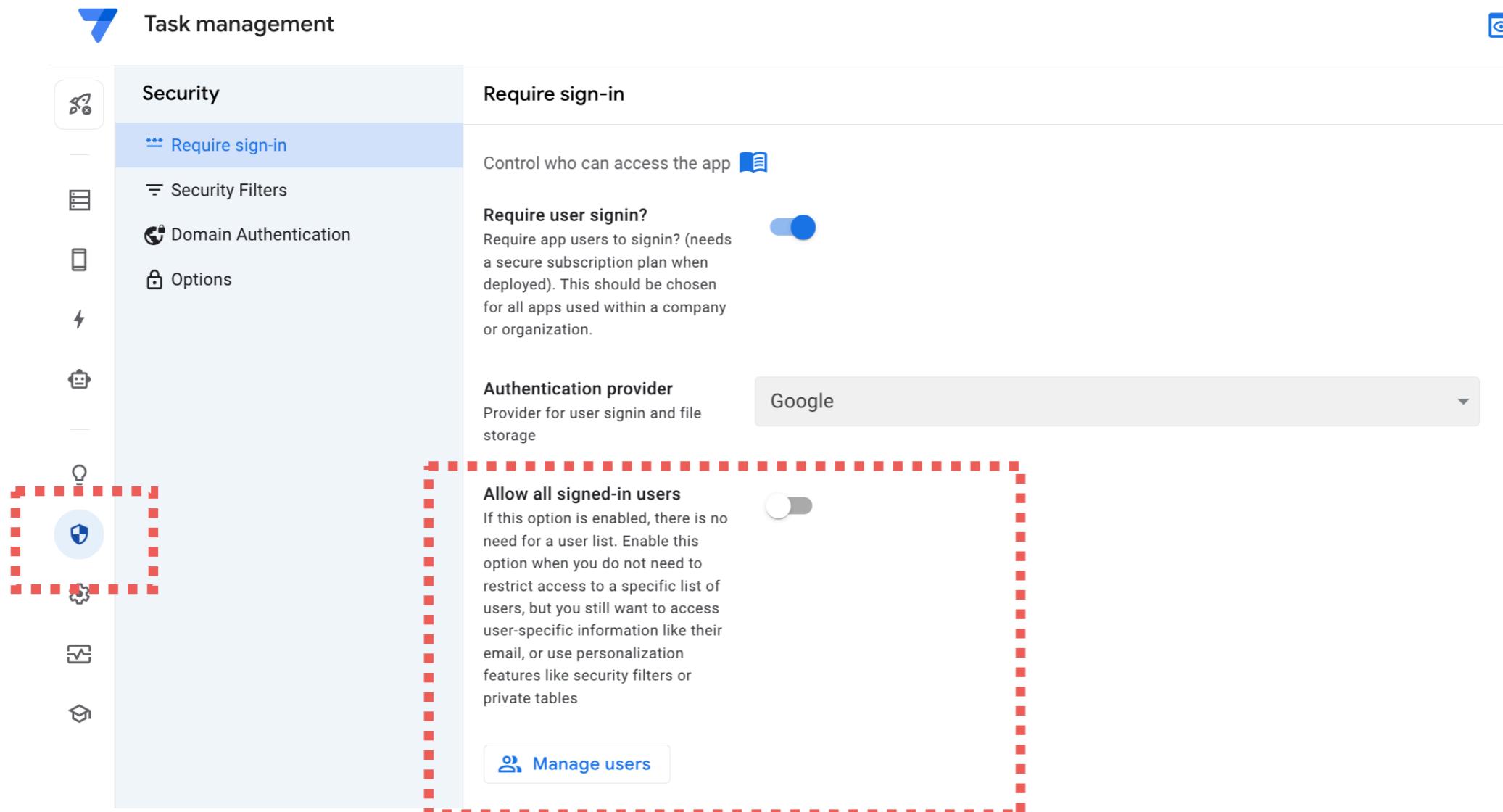
Broadcast notifications to your users

Pause app

Switch to recovery mode

# Step 7

## Add security to your app



The screenshot shows the 'Task management' app's security settings. On the left is a sidebar with icons for Task management, Security, Data, Automation, and Analytics. The 'Security' icon is selected and highlighted in blue. The main panel has a title 'Require sign-in' with a subtitle 'Control who can access the app'. It includes a 'Require user signin?' toggle switch (which is turned on), an 'Authentication provider' dropdown set to 'Google', and a 'Manage users' button. A red dashed box highlights the 'Allow all signed-in users' section, which contains a description and a toggle switch that is currently off.

Enable signed-in users and manage users

# Step 8

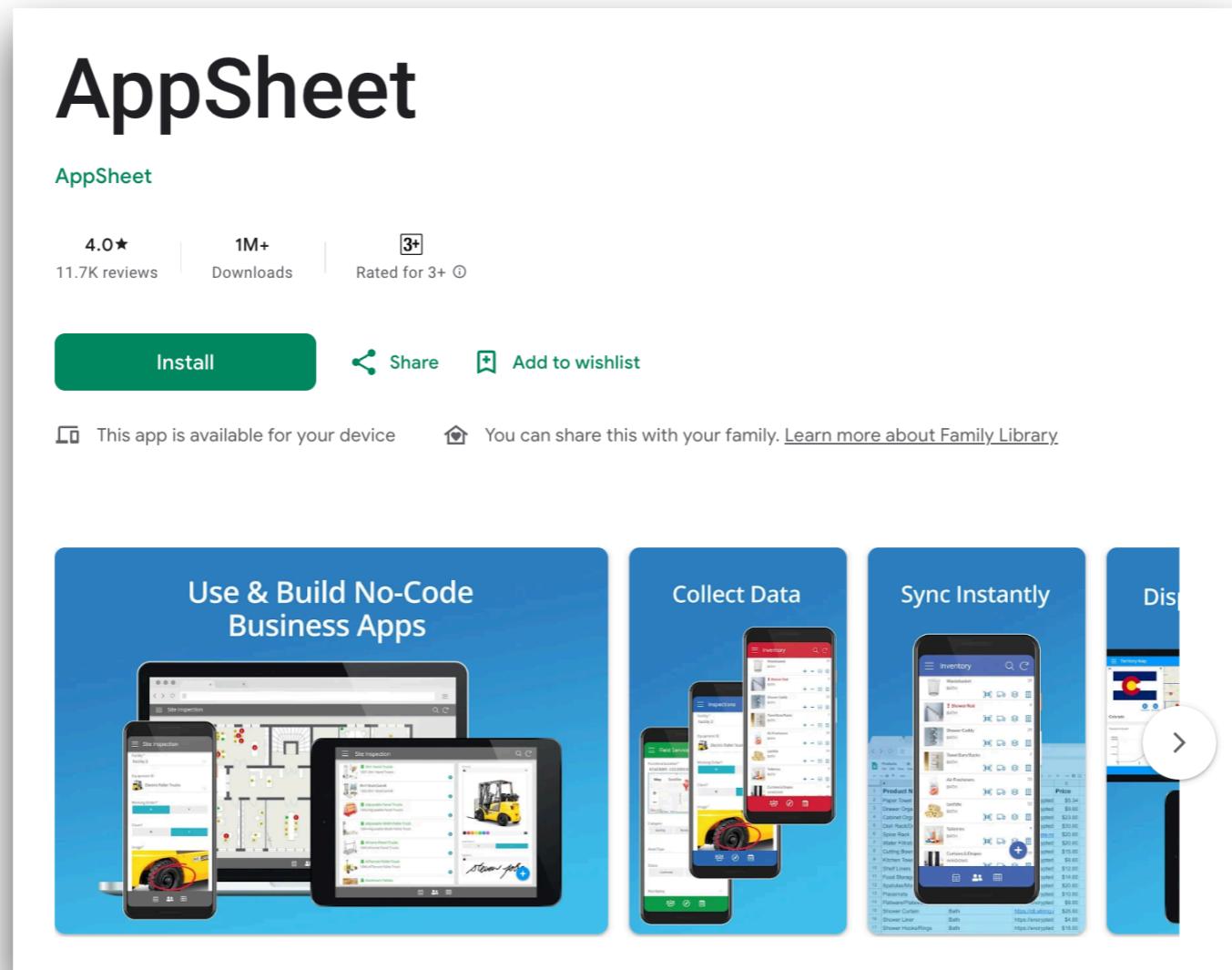
## Shared app to others

The screenshot shows the 'Share app' interface in AppSheet. At the top, it says 'Share app' with an info icon, '0 Users Invited / 0 Responded', and two settings icons. Below is a text input field labeled 'Email address or domain...'. Underneath, it shows 'Auth provider for app access: Google' with an 'Advanced' toggle switch. A user entry 'somkiat.p@gmail.com (you)' is listed as an 'Owner'. At the bottom, there are buttons for 'Copy sharing links' and 'Copy users', both highlighted with a red dashed box. A large blue 'Done' button is on the right. A red arrow points from the 'Done' button to a modal window titled 'Sharing Options' which lists three types of links:

- Editor Link**: Allows users to access the editor. Link: <https://www.appsheet.com/Template/AppDetail/17594328>
- Browser Link**: Run the app directly in your browser. Link: <https://www.appsheet.com/start/17594328-c>
- Install Link**: Allows mobile users to install the app on their device. Link: <https://www.appsheet.com/newshortcut/17594328>

# Step 9

## Download AppSheet App



# Working with Template

## App templates

Explore a library of common app use cases that can be copied and customized, or referenced as inspiration for your specific project. Or [start with an idea](#).

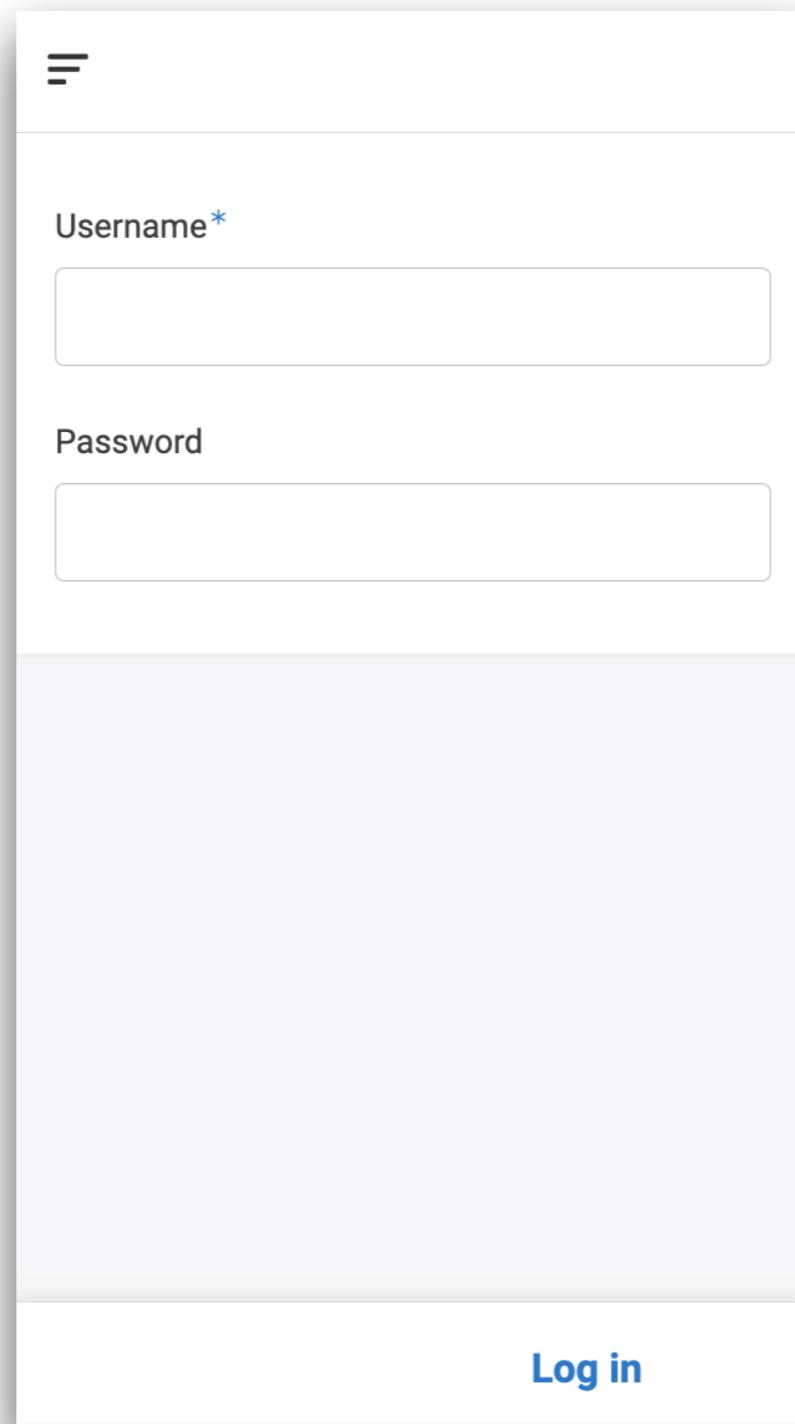
Industry Function Feature

 <b>Simple Survey</b> A basic app structure for creating surveys or forms	 <b>Simple Inventory</b> Update inventory and monitor levels
<a href="#">Copy</a> <a href="#">Explore</a>	<a href="#">Copy</a> <a href="#">Explore</a>
 <b>Kanban Board</b> Track projects and related tasks in a kanban dashboard	 <b>Project Tracker</b> Track project tasks or issues in a kanban dashboard
<a href="#">Copy</a> <a href="#">Explore</a>	<a href="#">Copy</a> <a href="#">Explore</a>
 <b>Onboarding and Training</b> Personalized Onboarding tool that helps manage training plan for employees	 <b>Shift Management</b> Shift Management Tool
<a href="#">Copy</a> <a href="#">Explore</a>	<a href="#">Copy</a> <a href="#">Explore</a>

<https://www.appsheet.com/templates>

# Add login and register page ?

# Login Screen ?



# Step 1 :: Create DataSource

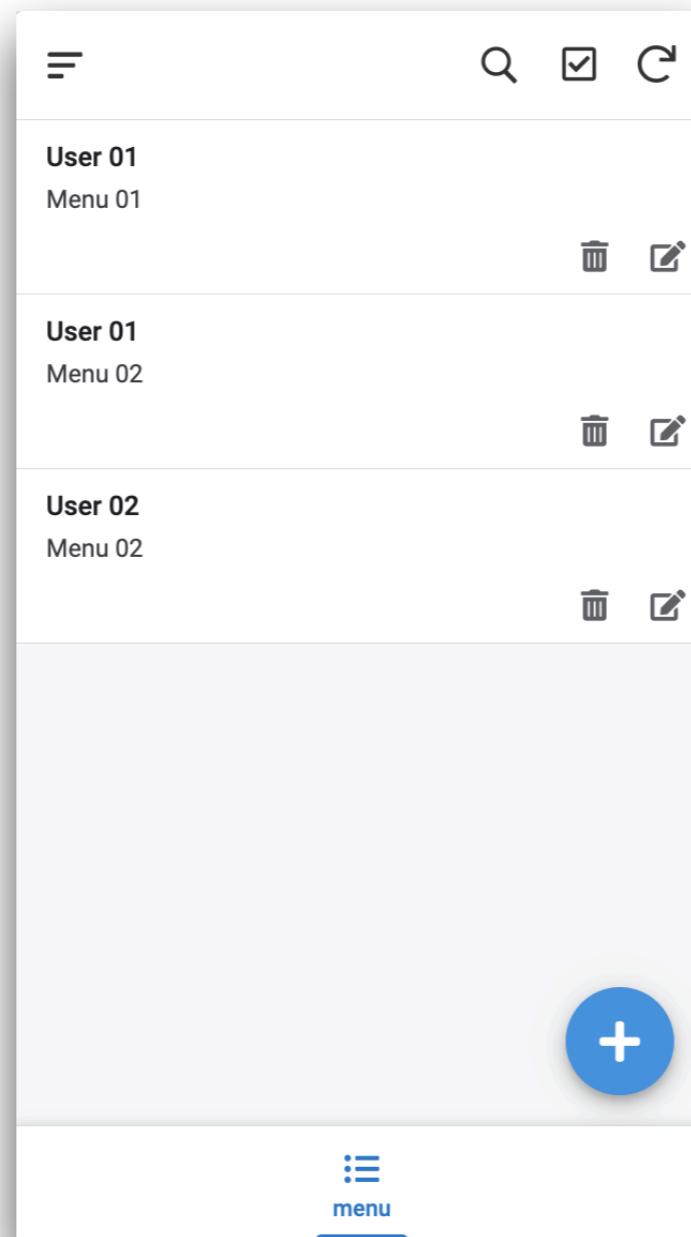
Working with Google Sheet

	A	B	C	D	E
1	<b>Menu</b>	<b>UserId</b>	<b>Password</b>	<b>Name</b>	<b>Level</b>
2	Menu 01	user01	pass01	User 01	Admin
3	Menu 02	user01	pass01	User 01	Admin
4	Menu 02	user02	pass02	User 02	Modulator
5					

Below the table is a navigation bar with icons for adding (+), list (≡), and a menu button labeled "menu ▾". The "menu" button is highlighted with a red dashed border.

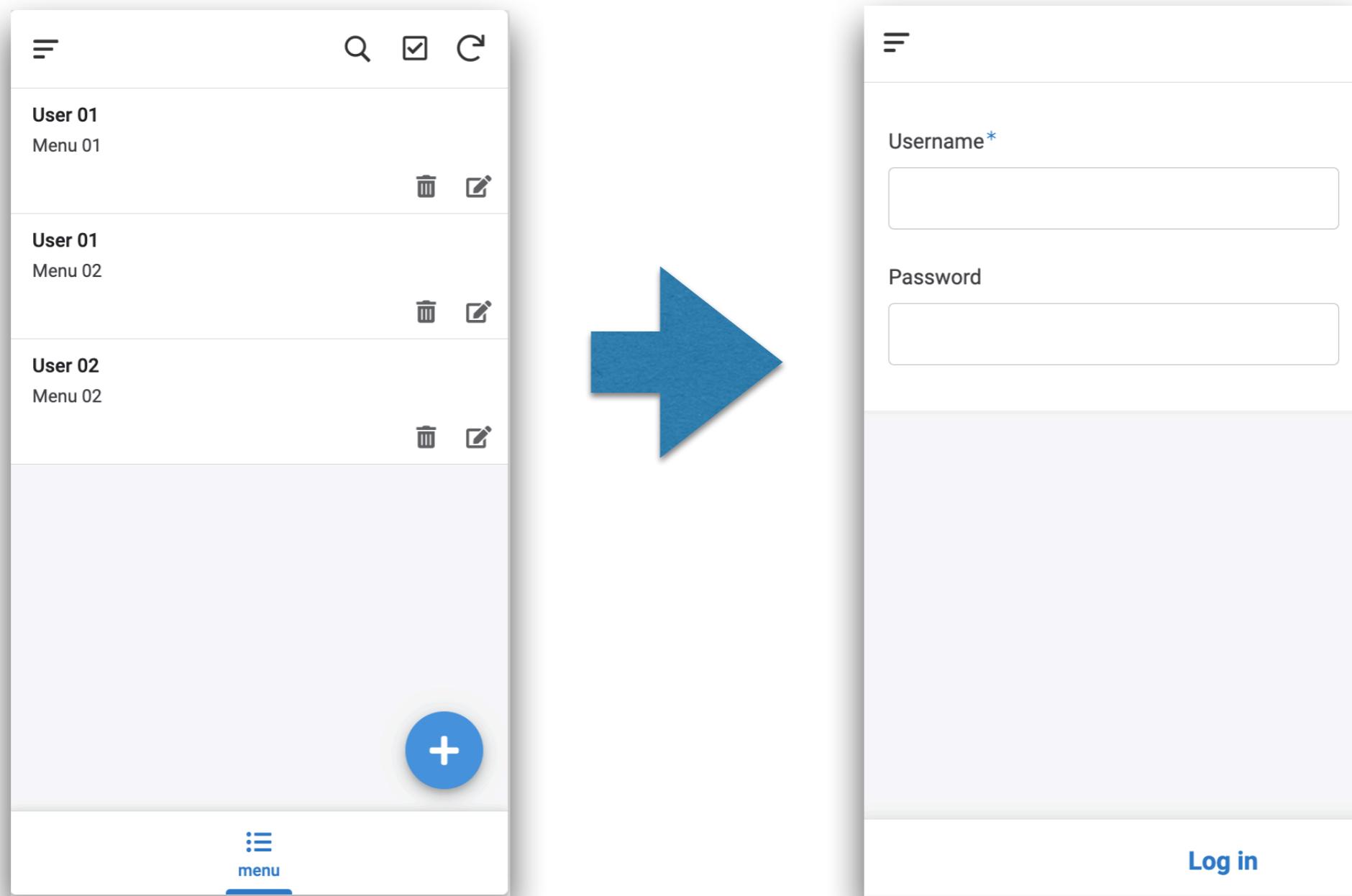
# Step 2 :: Create project

Choose existing data from step 1



# Step 3 :: Customize page

Show login page



# Edit Data -> User Settings

The screenshot shows a user interface for managing data settings. On the left is a sidebar with various icons: a gear (highlighted in orange), a list, a mobile phone, a lightning bolt, a clipboard, a question mark, a shield, a gear with a dot, a chart, and a house. The main area has a header "Data ⓘ" and a search bar. Below the header is a table titled "User settings".

	NAME	TYPE	FORMULA	SHOW?	EDITABLE?
1	Options Heading	Show	=	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Username	Text	=	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	Password	Text	=	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	Name	Text	=	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Level	Text	=	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Option 5	Text	=	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Option 6	Number	=	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Option 7	Text	=	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Option 8	Text	=	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Option 9	Text	=	<input type="checkbox"/>	<input checked="" type="checkbox"/>

At the bottom left, there is a section labeled "OPTIONS" with a dropdown menu containing "User settings".

# Change UI to login form

Views -> Settings

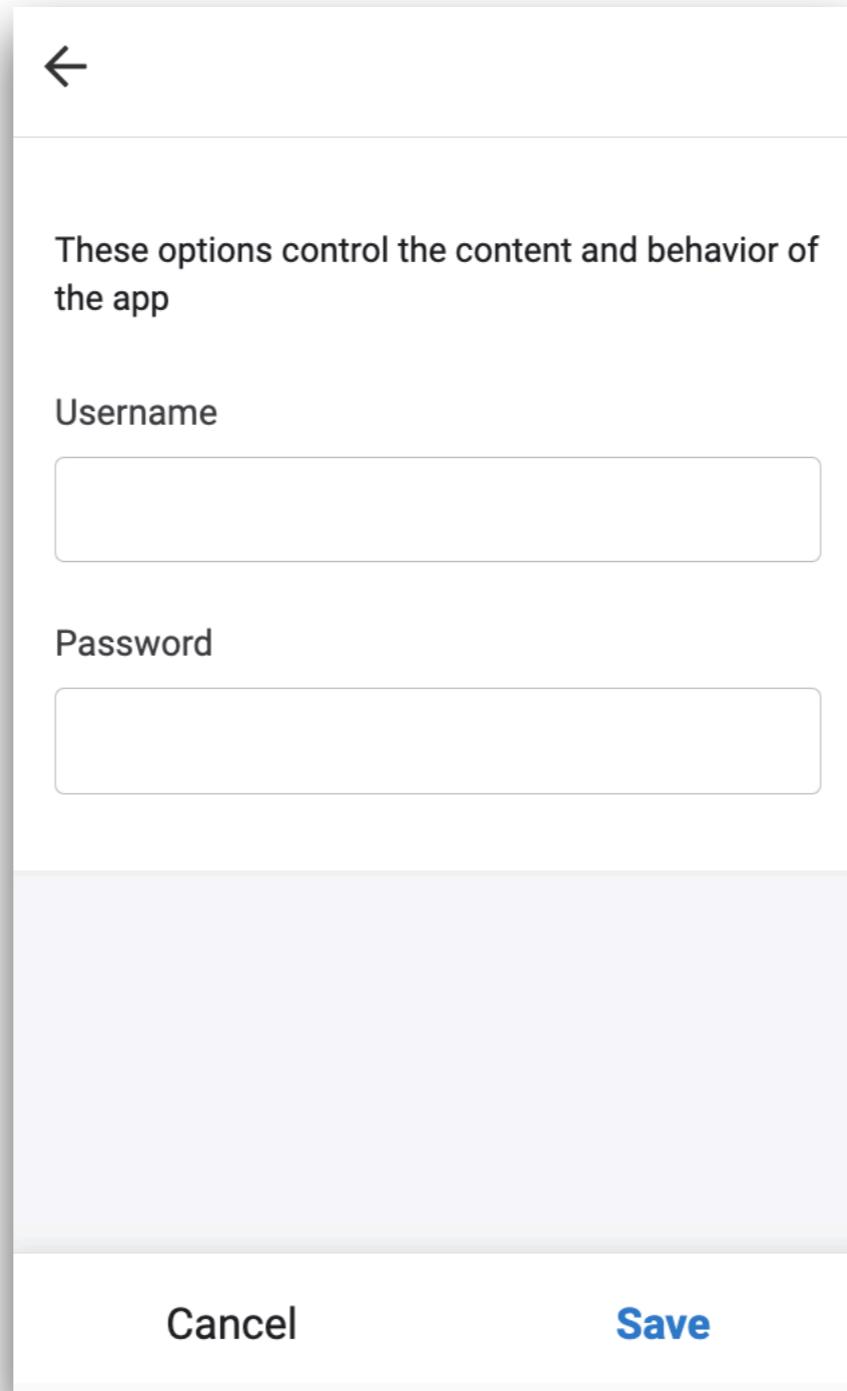
The screenshot shows the Zoho Creator interface for creating a new view. The left sidebar lists various view types: Views (selected), PRIMARY NAVIGATION, MENU NAVIGATION, and REFERENCE VIEWS. The 'Settings' view is currently selected and highlighted with a blue background.

The main area displays the configuration for the 'Settings' view. The title 'Settings' is shown above a red dashed box containing the formula `if(isnotblank(usersettings(level)),"Log out", "Log in")`. This formula is used for the 'Display name' field, which is described as the name shown for this view in the app. It can be left empty or set to a text value or a formula.

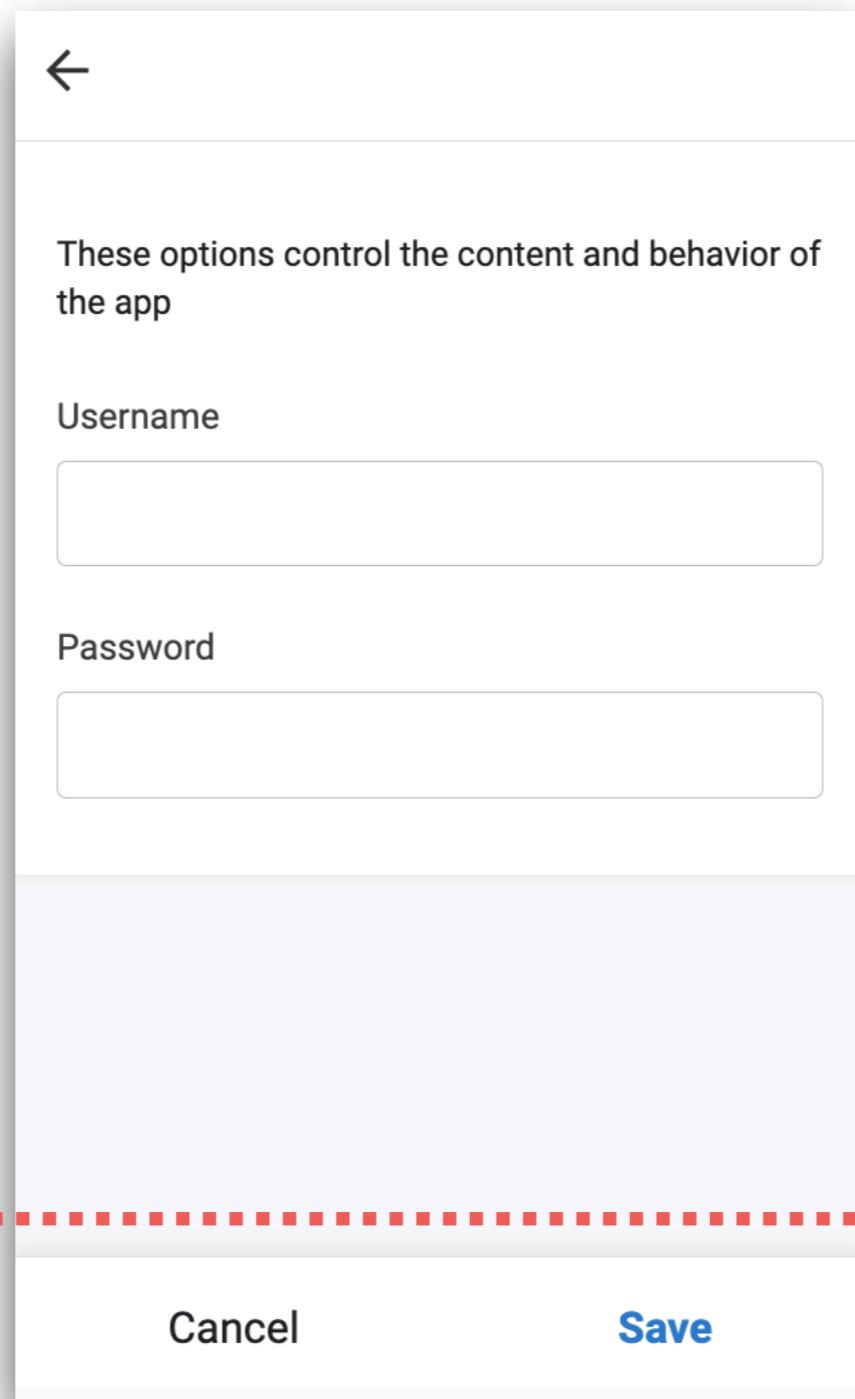
Below the display name, there is a section for 'Icon' with a gear icon and a dropdown menu showing a grid of icons. The grid includes categories like All, Solid, Regular, and Light, with numerous icons such as stars, hearts, gears, and various symbols.

At the bottom of the configuration area, there is a 'Finish view' section with the note: 'Navigate to this view after creating a new entry.' A dropdown menu at the bottom right is set to '\*\*Automatic\*\*'.

# Result



# Manage label of buttons !!



# Settings -> Views -> Localization

The screenshot shows the 'Views: Localization' screen within the 'Views' section of the 'Settings' menu. On the left, there is a sidebar with various icons and labels. The 'Localization' option is highlighted with a blue selection bar. The main area displays a list of localization entries, each consisting of a source string on the left and a target string on the right, separated by a red dashed border. Each entry has a 'T' icon and a small triangle icon to its right.

View	View
Save	Save
Submit	Submit
Reset	Reset
Cancel	Cancel
Discard	Discard
Done	Done
Clear	Clear

# Change Save to Login

The screenshot shows the Klipper app's settings screen. The left sidebar contains various configuration options: Information, Theme & Brand, Data (with Relationships and Legacy), Views (with General and View type options), Localization (which is selected and highlighted in blue), Performance, Offline mode, and Integrations. The main area is titled "Views: Localization" and displays a list of localization entries. Each entry consists of a key on the left and a corresponding text field on the right, with a "T" icon for text and a "D" icon for dropdown. A red dashed box highlights the first entry:

View	Text	Type
Save	Save	T D
Submit	Submit	T D
Reset	Reset	T D
Cancel	Cancel	T D
Discard	Discard	T D
Done	Done	T D
Clear	Clear	T D

The text field for the "Save" view contains the following code:

```
If(and(context("view")="settings",isnotblank(usersettings(username))), "Log out", if(and(context("view")="settings",isblank(usersettings(username))), "Log in","Save"))
```

# Hide Cancel button

Settings

Information

Theme & Brand

Data

Relationships

Legacy

Views

General

View type options

Localization

Performance

Offline mode

Integrations

Views: Localization

View

Save

Submit

Reset

If(and(context("view")="settings",isnotblank(usersettings(username))), " ",  
if(and(context("view")="settings",isblank(usersettings(username))), " ", "Cancel"))

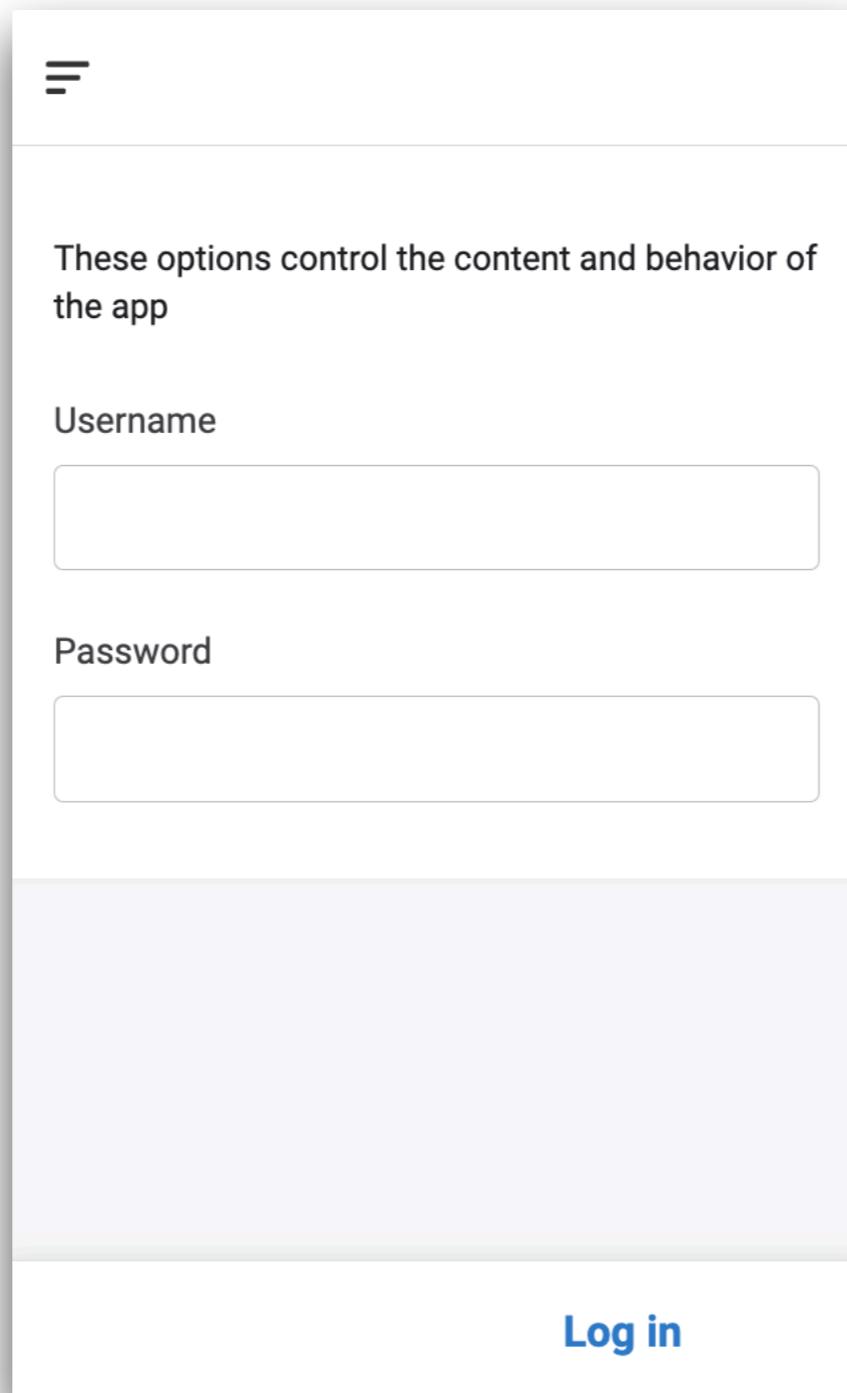
Cancel

Discard

Done

Clear

# Result



# Step 4 :: Validate data

Username and password

Username\*

Password

Log in

# Edit User Settings -> Username

\_Per User Settings : Username  
type: Text

Done ^

Type Details

Maximum length - +

Minimum length - +

**Data Validity**

**Valid If**  
Does the column contain valid data? = ✖

**Invalid value error**  
Error message when the value is not valid. = ✖

**Require?**  
Are users required to fill in this column before saving a row? You can also provide a 'Required\_If' expression to decide.  ✖

# Edit User Settings -> Username

\_Per User Settings : Username  
type: Text

Done ^

Type Details

Maximum length - +

Minimum length - +

**Data Validity**

**Valid If**  
Does the column contain valid data? = ✖

**Invalid value error**  
Error message when the value is not valid. = ✖

**Require?**  
Are users required to fill in this column before saving a row? You can also provide a 'Required\_If' expression to decide.  ✖

# Data Validity of Username

Topics	Value
<b>Valid if</b>	AND( ISNOTBLANK([username]), IN(_thisrow_after].[username],menu[Userid]), ISNOTBLANK([password]) )
<b>Invalid value error</b>	IFS( NOT(IN(_thisrow_after].[username],menu[Userid])),"username not found", isblank([password])," " )
<b>Required</b>	Yes

# Data Validity of Password

Topics	Value
<b>Valid if</b>	[password]=lookup([username],"menu","Userid","Password")
<b>Invalid value error</b>	"Wrong Password"
<b>Required</b>	Yes

# Result with Username

## Required fields

This screenshot shows a login interface with two required fields. At the top, a message reads: "These options control the content and behavior of the app". Below it, there are two input fields: "Username\*" and "Password\*". Both fields have red placeholder text indicating they are required: "This entry is required". A large blue "Log in" button is at the bottom.

These options control the content and behavior of the app

Username\*

This entry is required

Password\*

This entry is required

Log in

## User not found

This screenshot shows the same login interface as the first one, but with an error message. The "Username\*" field contains "user", and the message below it says "username not found". The "Password\*" field contains "1". A large blue "Log in" button is at the bottom.

These options control the content and behavior of the app

Username\*

user

username not found

Password\*

1

Log in

# Result with Password

Wrong password

These options control the content and behavior of the app

Username\*

Password\*

Wrong Password

Log in

# More Workshop

# Google Looker

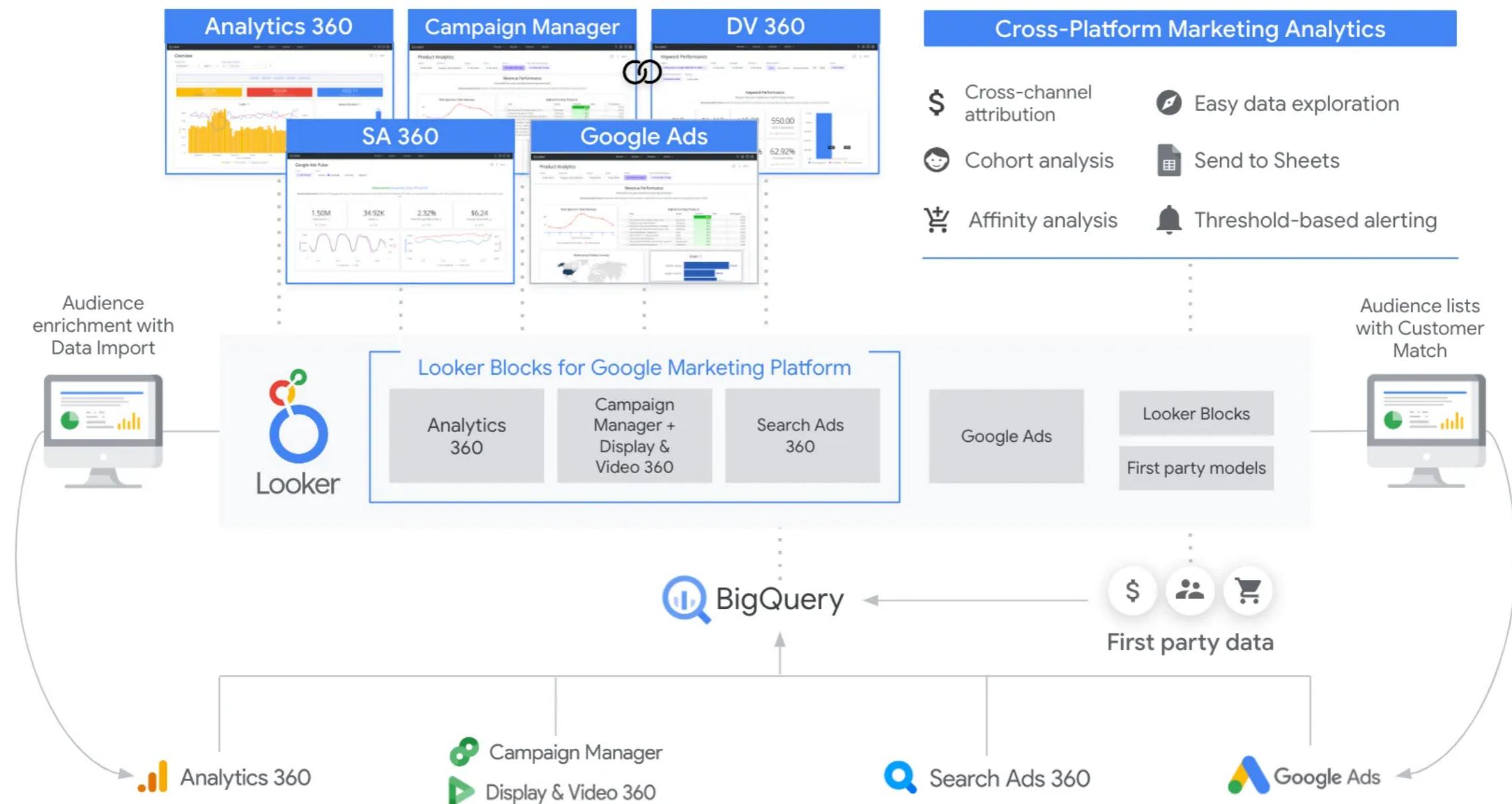
Analyze data, deliver business insight and AI



<https://cloud.google.com/looker>

# Google Looker

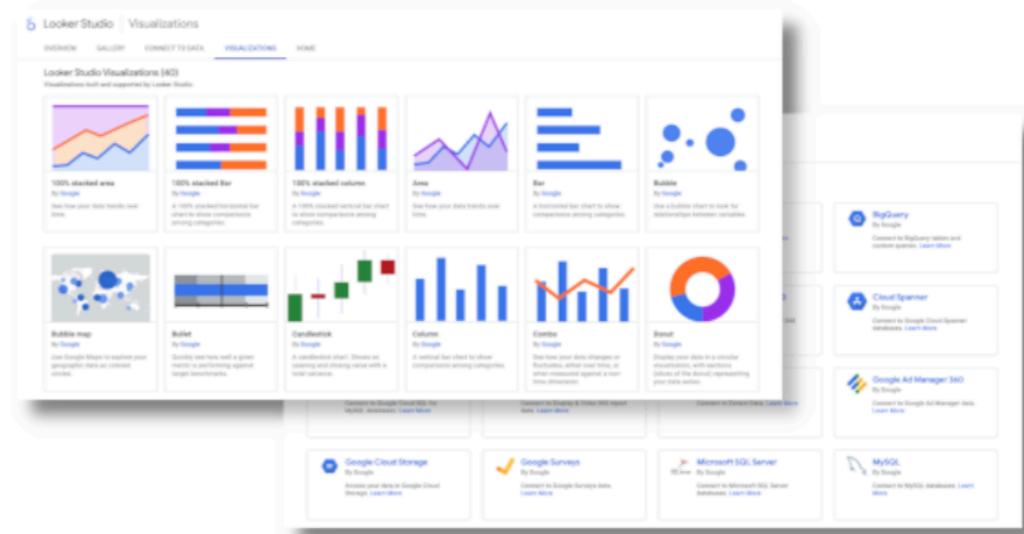
## Analyze data, deliver business insight and AI



# Start with Looker Studio

## Connect and visualize your data

Bring the power of Looker Studio to your data.



### Connect

Build a connector to enable new connections from any internet accessible data source. Browse all of the data you can already connect to.



### Visualize

Create custom visualizations to tailor reports to your data. Explore new ways to visualize your data.



### Integrate

Build beautiful report templates to allow users to see their data in your report. Distribute your work to customers.

[Preconfigure reports](#)    [Publish your work](#)

<https://developers.google.com/looker-studio>

# Connect to Data Sources

The screenshot shows the 'Connect to Data' section of the Looker Studio interface. At the top, there's a navigation bar with tabs: OVERVIEW, GALLERY, CONNECT TO DATA (which is highlighted in blue), VISUALIZATIONS, and HOME. Below the navigation is a search bar with the placeholder 'Search connectors...'. A main heading says 'Access your data from 1000+ data sets from over 980 connectors.' Underneath, there's a heading 'Looker Studio Connectors (21)' followed by a subtext 'Connectors built and supported by Looker Studio. [Learn more](#)'. A search bar below the heading has the placeholder 'Search connectors...'. The page displays nine connector cards arranged in a grid:

- Looker** By Google: Connect to your Looker semantic models. [Learn More](#)
- Google Analytics** By Google: Connect to Google Analytics reporting views. [Learn More](#)
- Google Ads** By Google: Connect to Google Ads performance report data. [Learn More](#)
- Google Sheets** By Google: Connect to Google Sheets. [Learn More](#)
- BigQuery** By Google: Connect to BigQuery tables and custom queries. [Learn More](#)
- AppSheet** By Google: Connect to AppSheet app data. [Learn More](#)
- File Upload** By Google: Connect to CSV (comma-separated values) files. [Learn More](#)
- Amazon Redshift** By Google: Connect to Amazon Redshift. [Learn More](#)
- Campaign Manager 360** By Google: Connect to Campaign Manager 360 data. [Learn More](#)

<https://lookerstudio.google.com/data>

# Create Visualization

Looker Studio | Visualizations

OVERVIEW GALLERY CONNECT TO DATA VISUALIZATIONS HOME

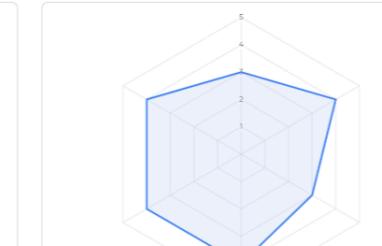
**Featured Visualizations (4)**  
New and interesting visualizations for Looker Studio.



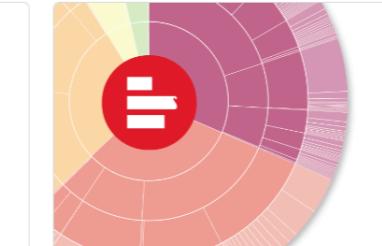
**Gauge**  
By [Google](#)  
A gauge with a dial.



**Metric Funnel**  
By [PowerMyAnalytics](#)  
Easy to configure funnel that uses up to 8 metrics.



**Radar Chart**  
By [ClickInsight](#)  
A radar chart built with Chart.js

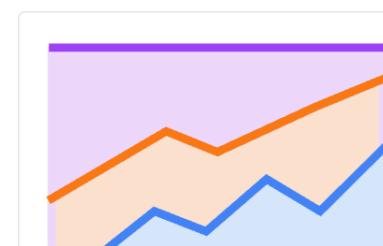


**Sunburst Chart**  
By [Supermetrics](#)  
Sunburst Visualization with drill-down option



**Create your own**

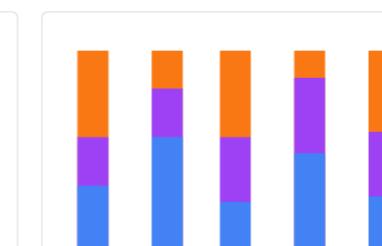
**Looker Studio Visualizations (40)**  
Visualizations built and supported by Looker Studio.



**100% stacked area**  
By [Google](#)  
See how your data trends over time.



**100% stacked Bar**  
By [Google](#)  
A 100% stacked horizontal bar chart to show comparisons among categories.



**100% stacked column**  
By [Google](#)  
A 100% stacked vertical bar chart to show comparisons among categories.



**Area**  
By [Google](#)  
See how your data trends over time.



**Bar**  
By [Google](#)  
A horizontal bar chart to show comparisons among categories.

<https://lookerstudio.google.com/visualization>

# More Tools

# Airtable



Platform > Solutions > Resources > Pricing

Contact Sales

Sign up for free

Sign in

The fastest way to build apps

Empower your team to work faster and more confidently than ever before.

Watch an AI demo +

Sign up for free Contact Sales

Marketing / Assets / Onboarding / Product Ops / Operations / Stores / Sprints

**Project Tracker / Directory**

- Marketing overhaul campaign
- Brand refresh
- Customer engagement campaign
- Identify target customer
- Develop plan for engagement
- Brainstorm content
- Collect customer feedback
- Customer journey mapping
- Performance analytics

**Marketing / Assets / Gallery**

Awaiting review Blocked Rejected More

- Athlete on court (Lifestyle, Spring season)
- Runner in jacket (Lifestyle, Winter season)
- Runner on bleachers (Lifestyle, Winter season)
- Green polo shirt
- Blue polo shirt
- Blue running shoes
- Purple running shoes

**Onboarding / New Hire Checklist**

New Hire Checklist

Pending Tasks All employees

Employee	Start date	Objective	Assignee	Priority
Myrynn Wolfart	Oct 26th, 2022	Send Manager welcome letter	Jules Harris	Urgent
		Send laptop	Hikaru Kubo-Kingsley	Critical
		Schedule new-hire orientation	Hikaru Kubo-Kingsley	Important
		Assign on-boarding partner	Hikaru Kubo-Kingsley	Important
		Send gift basket	Pat Everett	Important

**Product Ops / Sprints / Timeline**

Current and next sprint All sprints

May 2023

- Not started
- In progress
- Done

**Operations / Stores / #SKU-001**

#SKU-001

Status Ordered by

Centaur Pro - Green Serial #SKU-001

Centaur Pro - Purple Serial #SKU-002

No comments yet

Add a comment...

<https://www.airtable.com/>

# Create from Template

What kind of app do you need?



Marketing & Creative



Product Development



Project Management



IT & Support



UX Research

# Task management app

Try by yourself

The screenshot shows a web-based task management application. On the left, there is a sidebar with the title "Task management" and a dropdown menu. The menu items include "Projects" (which is selected), "Tasks", "Latest Updates", "Needs an Update", and "Risks". Below the menu is a button labeled "+ Add project". The main area is titled "Projects / Projects" and contains a table with the following data:

Project name	Description	Start date	End date	Status	Assigned to
Project Delta	This project is for updati...	4/1/2022	7/31/2022	In Progress	-
Project Beta	This project aims to optimi...	2/1/2022	4/30/2022	Not Started	Somkiat Puisur
Project Gamma	This is a project for dev...	3/1/2022	6/30/2022	Not Started	-
Project Alpha	This is a high priority pr...	1/1/2022	3/31/2022	In Progress	Somkiat Puisur

# Bubble.io

The screenshot shows the Bubble.io homepage. At the top, there's a navigation bar with links for Product, Use cases, Pricing, Resources, Contact sales, Log in, and Get started. The main headline reads "The world's only full-stack, no-code platform". Below it, a sub-headline says "Design, develop, and launch production-grade applications without code. It doesn't matter if you're starting out or on an enterprise team — Bubble is for anyone." A "Get started for free" button is visible. The central part of the page features a "Data types" sidebar with icons for .b, %, ⚡, and a database. It lists "Subscriptions" (which is highlighted in blue), "Users", "Bookings", "Listings", and "Invoices". To the right is a "Subscriptions" table with columns for Full Name, Email, Subscription (with a cursor icon pointing to it), and Created. There's also a plus sign (+) icon.

<https://bubble.io/>

# Webflow



Product ▾ Solutions ▾ Resources ▾ Enterprise Pricing

Log in Contact sales

Get started — it's free

# Build with the power of code — without writing any

Take control of HTML, CSS, and JavaScript in a visual canvas. Webflow generates clean, semantic code that's ready to publish or hand to developers.

Start building

<https://webflow.com/>

# Start with template

Choose a template

Category ▾ Free & paid ▾

**Portfolio Starter | Free**  
Portfolio

**Business Starter | Free**  
Business

**Store Starter | Free**  
Business

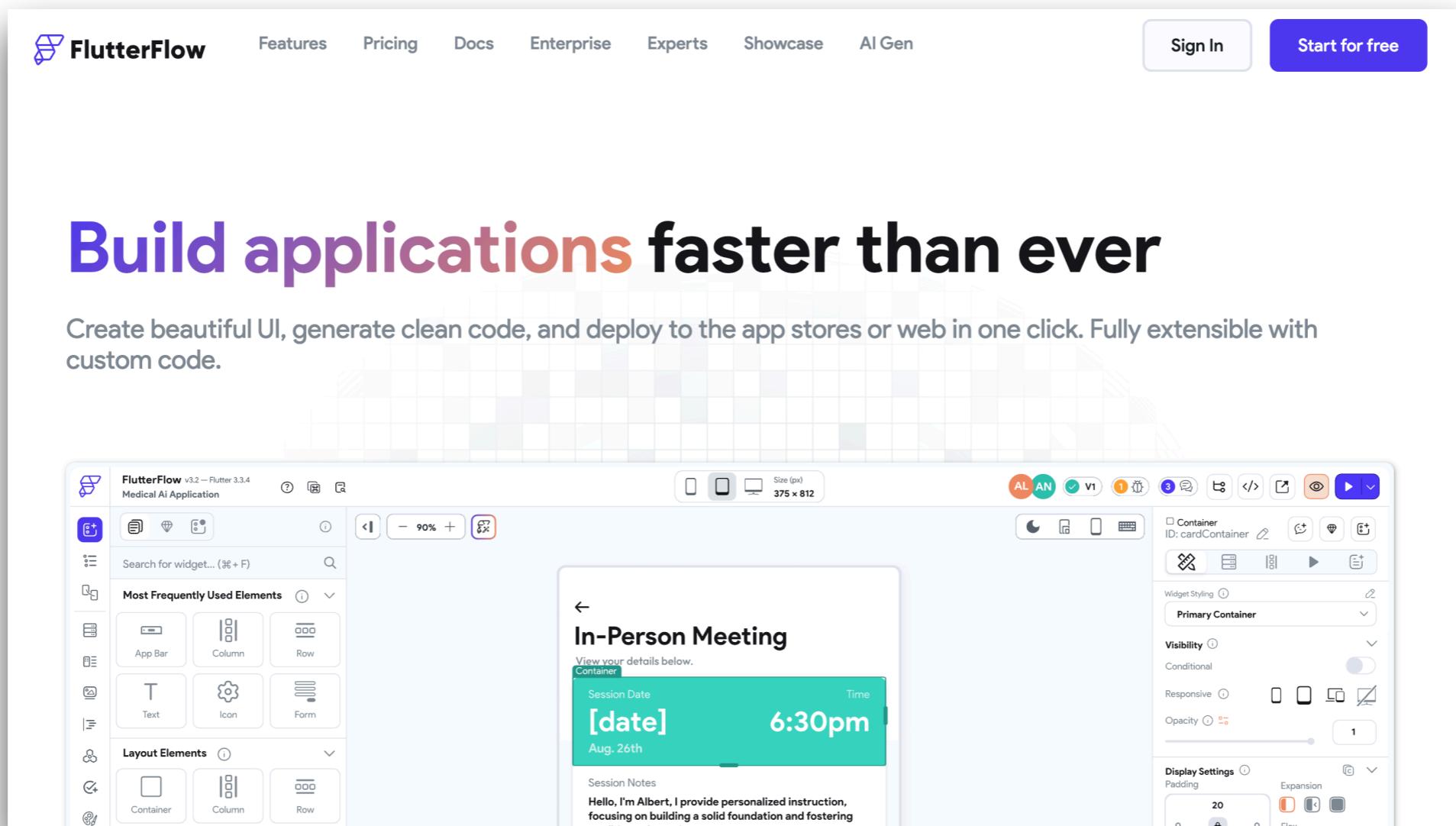
**Momentum | Free**  
Marketing

See more templates in Marketplace ↗

<https://webflow.com/>

# Flutter Flow

## Develop mobile app with Flutter



<https://flutterflow.io/>

# Notion

Notion Docs Wikis Projects AI Calendar Download Pricing Request a demo Log in Get Notion free

## Write, plan, organize, play

Turn ideas into action with Notion's AI-powered workspace.

[Get Notion free](#) [Request a demo →](#)

The image shows a composite screenshot of the Notion platform. On the left, there's a stylized illustration of a person's head with gears and icons like a checkmark and a gear inside, symbolizing thought and organization. The main area displays the Notion interface for 'Acme Labs'. The desktop version has a light background and includes a sidebar with navigation links like 'Search', 'Home', 'Updates', 'Settings', and 'New page'. It also lists 'Favorites' such as 'Acme Labs', 'Brainstorm', and team spaces for 'General', 'Engineering', 'Design', 'Marketing', and 'Sales'. The central content area shows the 'Acme Labs' page with sections for 'Company' (Mission, vision, values; Office manual; Employee directory), 'Locations' (London, New York, Paris), and 'Teams' (Engineering, Design). An 'Ask AI' feature is visible. To the right, a mobile phone screen shows the same workspace, but in a dark mode theme. A large circular graphic on the right side features icons for a document, a paper airplane, and a moon, representing the 'play' aspect of the workspace.

<https://www.notion.so/>

# Canva

Easy to create presentation

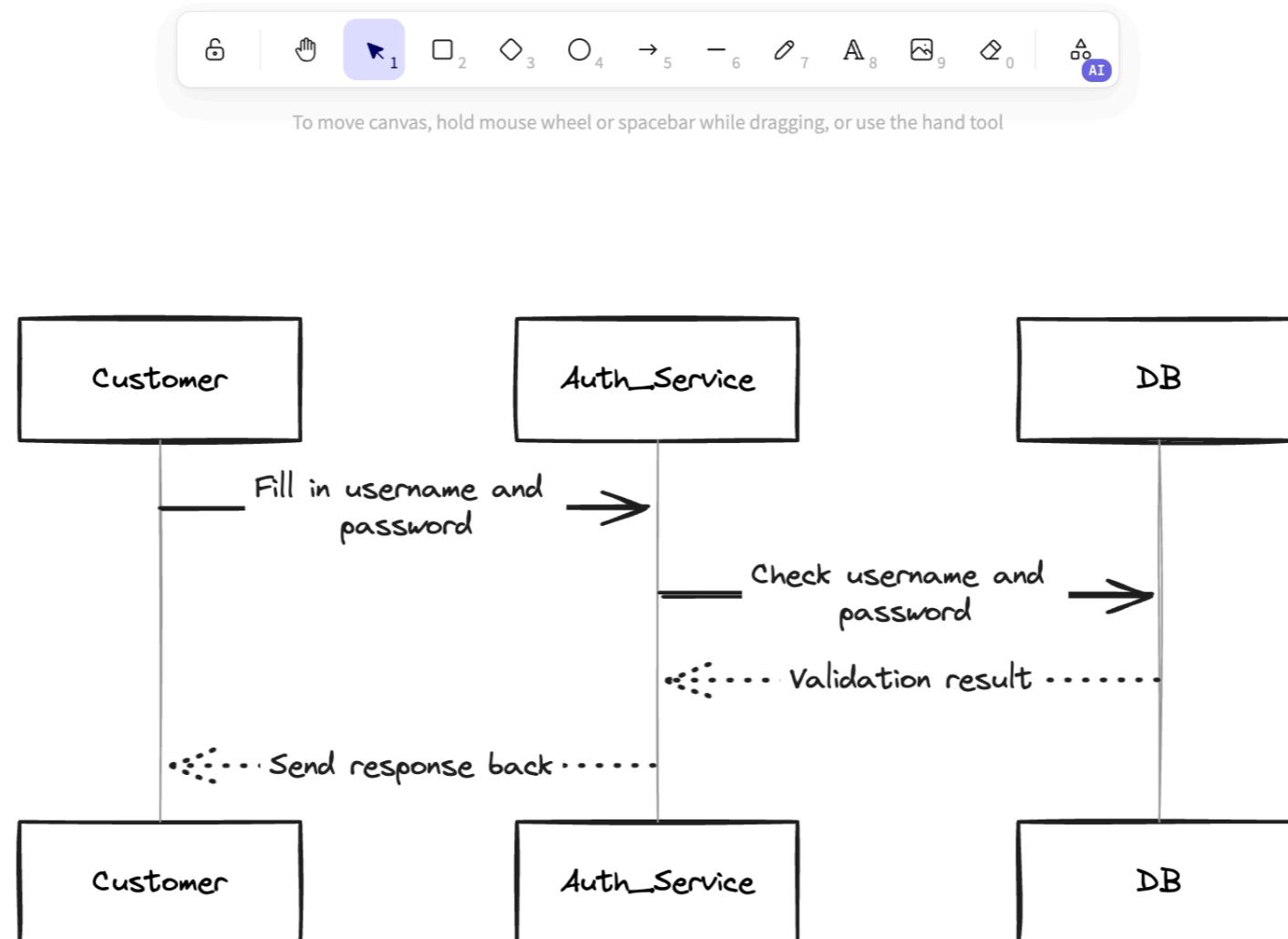
The image displays a grid of 15 different Canva design templates. The templates are arranged in three rows: the first row has four items, the second row has five, and the third row has six. The designs include:

- Pitch Deck: A dark blue template featuring a person presenting on a laptop.
- REAL ESTATE FOR SALE: A purple template showing a modern house with interior room counts (Living Room, Dining Room, 2 Bedrooms, Kitchen).
- Annual Report: A purple template titled "Annual Report 2025-2030" with a circular image of a city skyline.
- INTERIOR DESIGN: An orange template showing a living room interior.
- MINIMALIST PHOTOGRAPHY: A white template featuring a minimalist photograph of a vase with dried flowers.
- INTERNATIONAL MOUNTAIN DAY: A teal template with a photograph of a mountain landscape.
- Time moves AND OPPORTUNITIES PASS: An orange template featuring a clock face.
- JUST LISTED: An orange template showing a house exterior with contact information for Jade Hogan.
- Valla: A blue template featuring a person speaking on a phone.
- Creative MANAGEMENT FOR SMALL BUSINESSES: A black template with a photograph of a person working at a desk.
- season ender sale: A blue template featuring a woman's face and a coffee cup.
- WEBINAR: A teal template with a photograph of a person speaking.
- This Week's NEW DRINKS: An orange template featuring a cocktail with a lime wedge.

<https://www.canva.com/>

# Excalidraw

Easy to create diagram



<https://excalidraw.com/>

# Make

## Create automated workflow

[Product](#) ▾[Solutions](#) ▾[Pricing](#)[Resources](#) ▾[Partners](#) ▾[Log in](#)[Get started free](#)

# Align teams #withMake

From tasks and workflows to apps and systems, build and automate anything in one powerful visual platform.

[Get started free](#)

- ✓ No credit card required
- ✓ No time limit on Free plan

<https://www.make.com/en>

# **Low code for Testing**

# Low code for Testing

## Challenges in Traditional Automation Testing



Traditional automation tools like Selenium are difficult to use

**40-60%**

of the total automation effort goes into script maintenance.

**50%**

nearly 50% of test automation projects fail due to inadequate planning and a lack of skilled resources.

**30%**

About 30% of automation issues arise from the complexities in managing and maintaining test data.

**8/10**

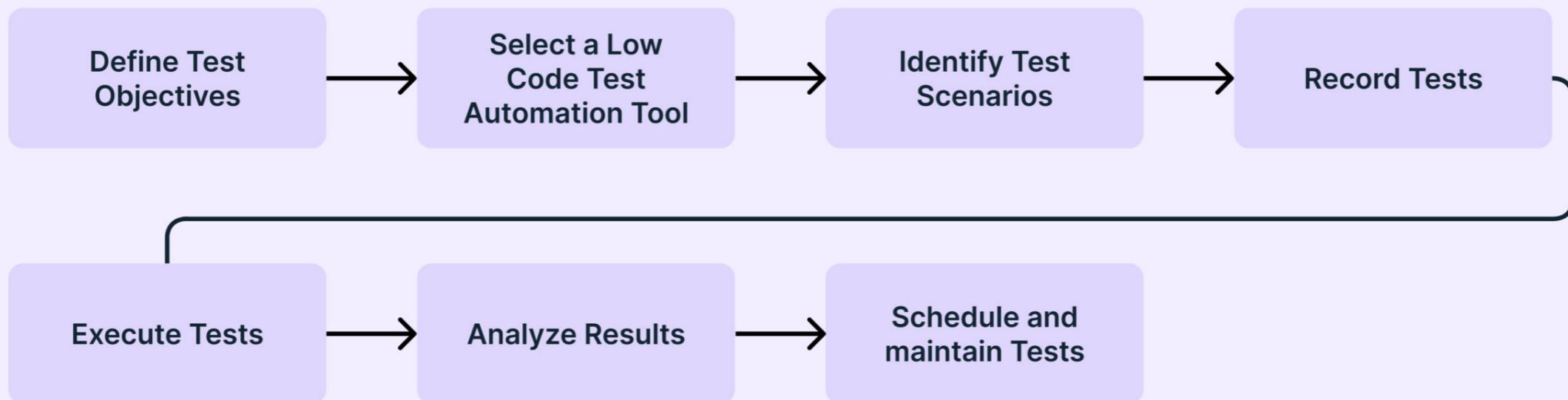
8/10 manual testers cannot code, leading to a requirement to hire skilled automation testers.

# Who should perform ?

Manuel Tester and QA  
Developer  
Non-technical

# Process

## Low Code Automation Testing Process



# Tools



**CHROME RECORDER**  
RECORD, REPLAY AND MEASURE  
USER FLOWS



**POSTMAN**



**Selenium IDE**  
Open Source record and playback test  
automation for the web.

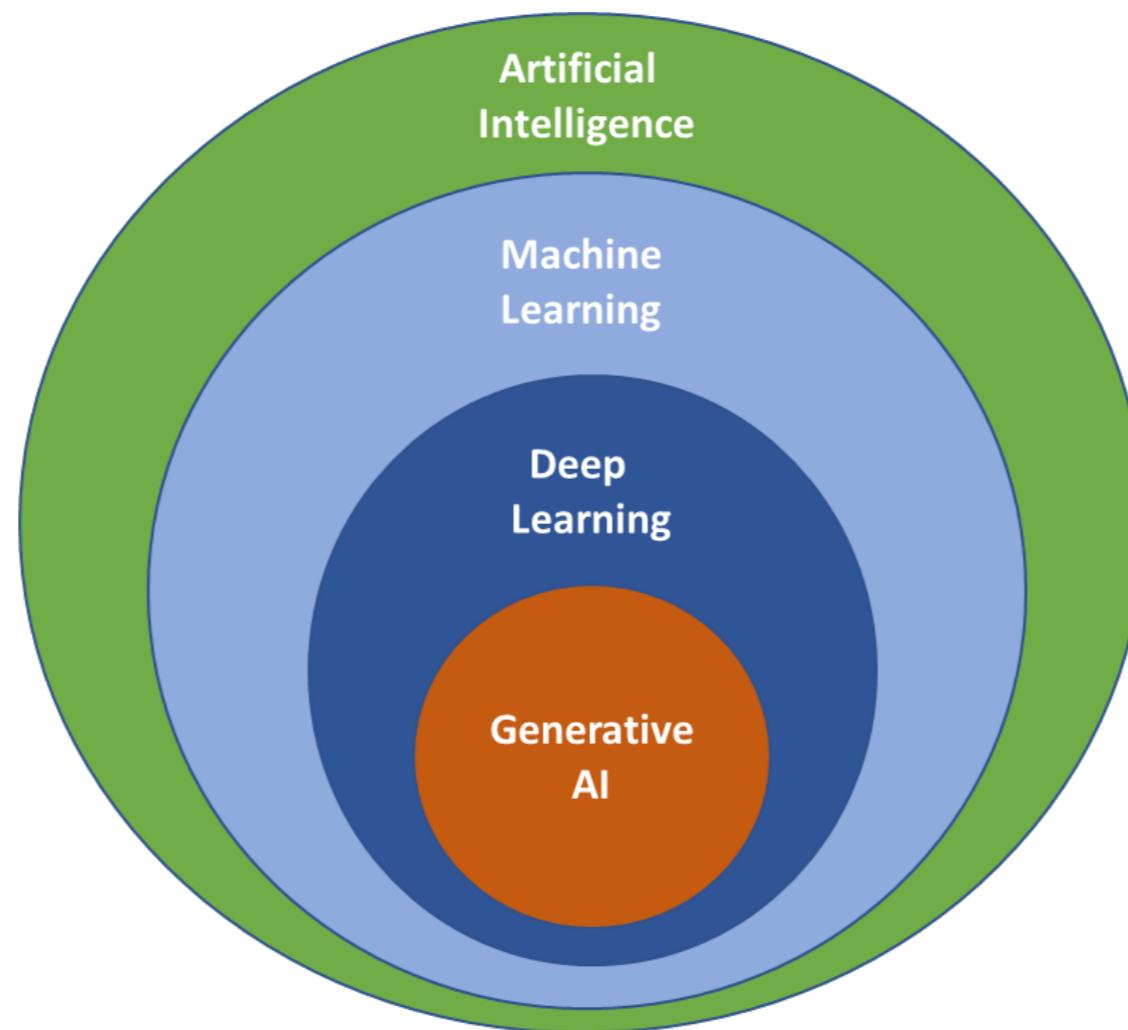


**Katalon**

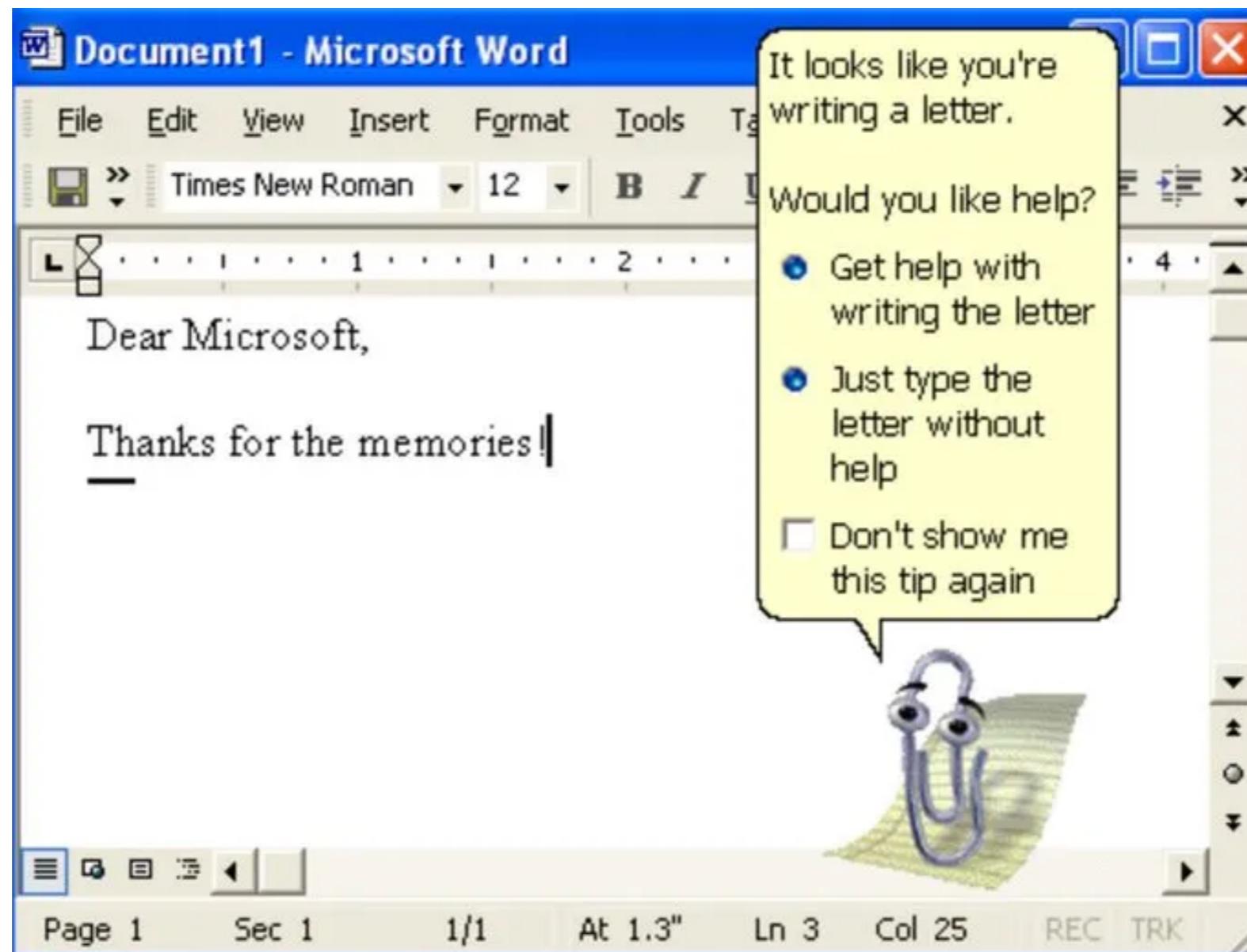


**Playwright**

# Generative AI



# Generative AI (GenAI)



# Generative AI (GenAI)

Days before OpenAI



Days after OpenAI



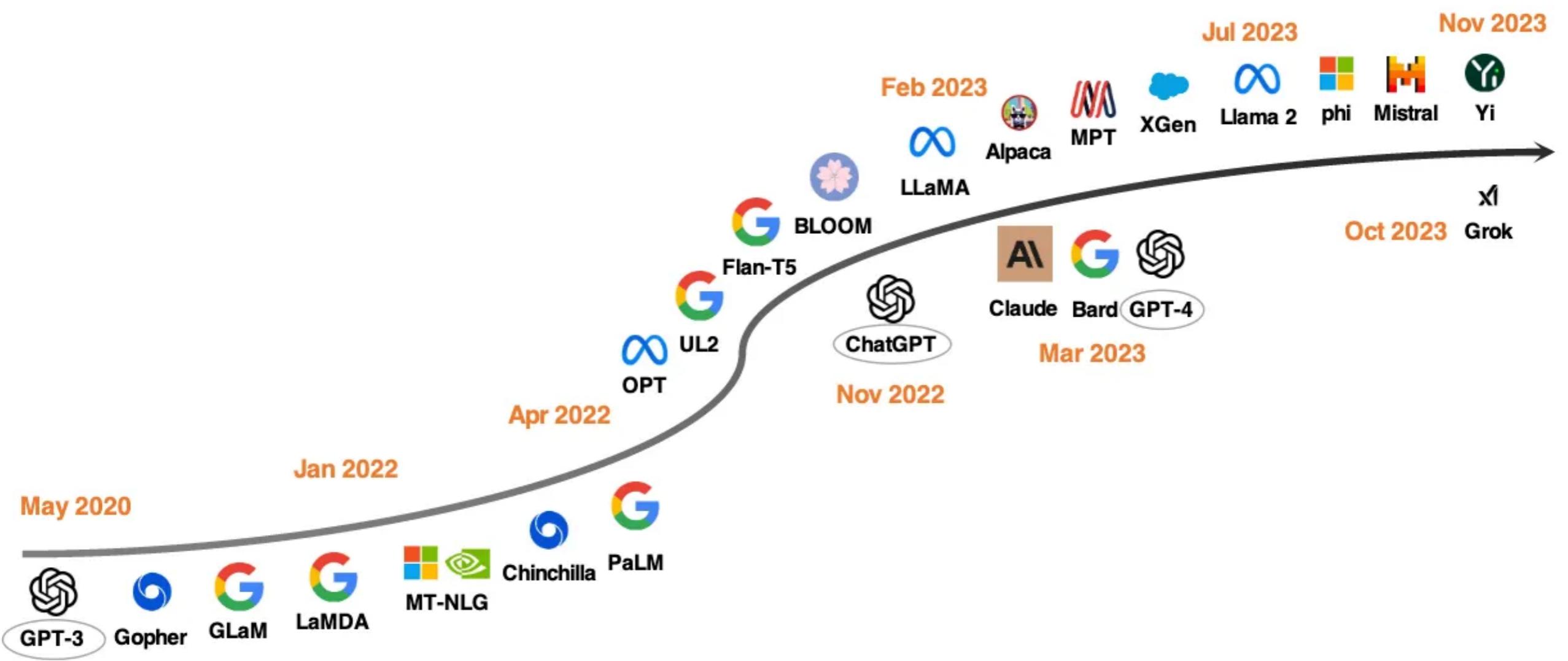
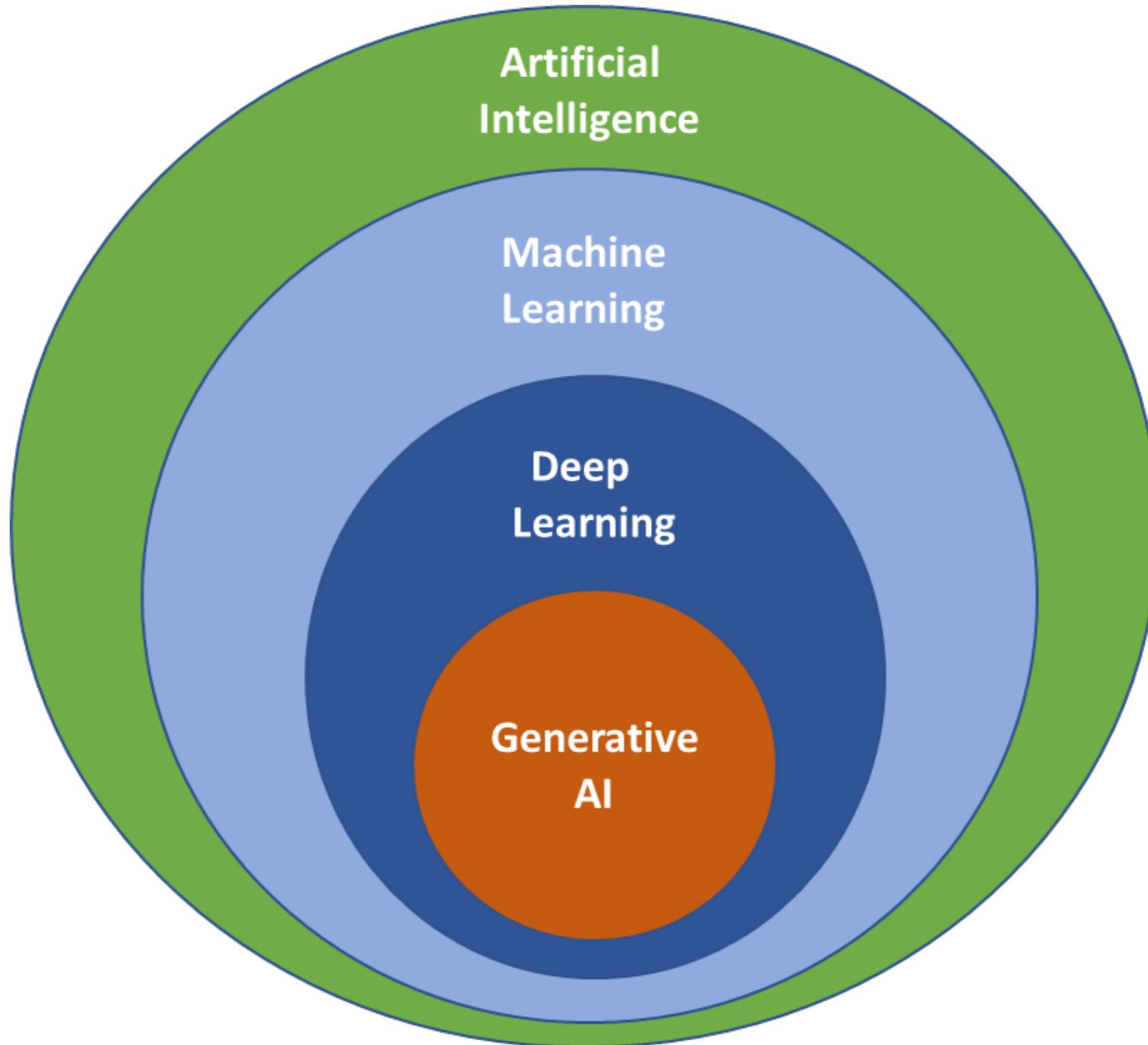
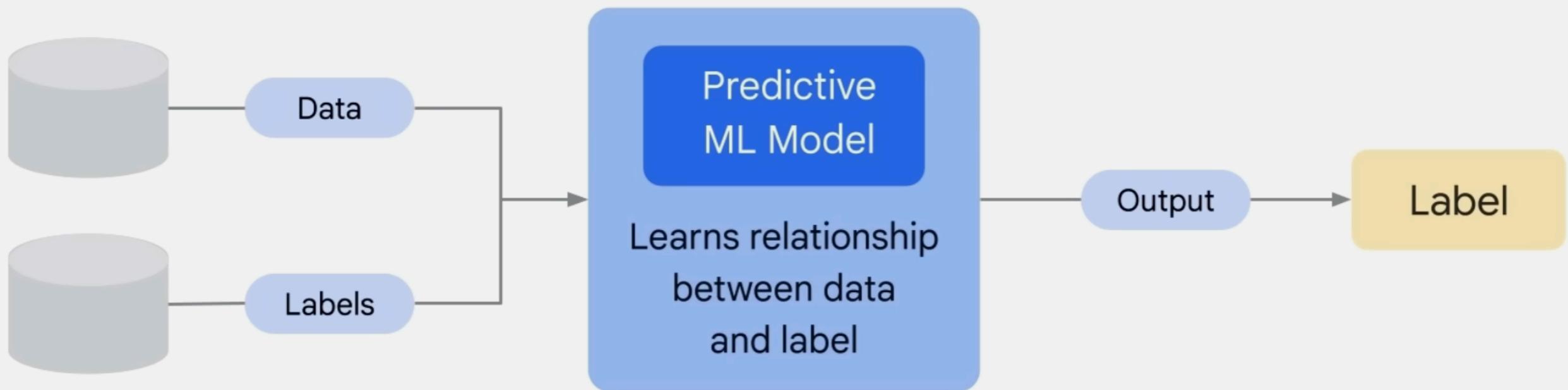
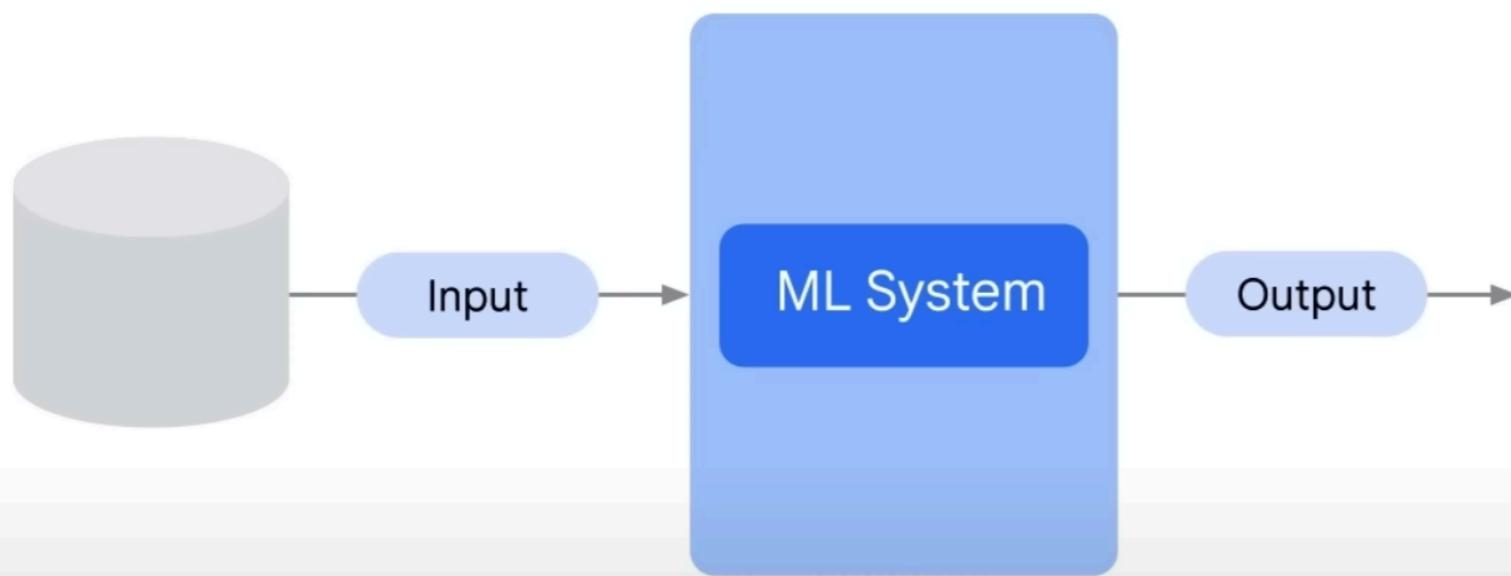


Figure 3: LLM development timeline. The models below the arrow are closed-source while those above the arrow are open-source.

<https://arxiv.org/abs/2311.16989>







Not GenAI when `y` is a:

- Number
- Discrete
- Class
- Probability

Is GenAI when `y` is:

- Natural language
- Image
- Audio

Application

Infrastructure

Model

# **Application Tool chains**

# Global Generative AI Landscape

The Global Generative AI Landscape 2024

AIport

## North America

MULTIMODAL	CHATBOTS
Adobe Firefly, Gemini, Meta, perplexity	Anthropic, glean, character.ai, YandexART, frame.ai, deepgenomics, OBSERVE-AI, Meta
TEXT	IMAGE
NVIDIA, AssemblyAI, intuit, ImageFX	OpenAI SORA, Rephrase.ai
AUDIO	VIDEO
Suno, soundful, ElevenLabs	Speechify, PlayHT, USICO, VOICEMOD
GAMES	RUBLOX
CODE	BUSINESS INTELLIGENCE
mosaicML, codemaker AI	LEVELAI, layer6

## South America

IMAGE
MUTT DATA

## Europe

MULTIMODAL	CHATBOTS	TEXT
runway, YandexART	MISTRAL AI, LightOn, YandexGPT	ultimate.ai, ALEPH ALPHA, Kafkai, AdCreative, lang.ai, contents.com, clearword, SMARTLY.IO
IMAGE	stability.ai	stability.ai
READY TO USE	stability.ai	stability.ai, blackshark.ai
CODE	AUDIO	BUSINESS INTELLIGENCE
stability.ai	ACCELERAT.AI, USICO	COLUCINITY, lizard, DeepMind, SYNTHO

## Africa

CHATBOTS	AUDIO	BUSINESS INTELLIGENCE
AI21 studio, CHAI, Tymely, Tencent	VinBase	SAMSUNG

## Asia

CHATBOTS			
MetaDialog, HUA ZANG, gnani.ai, Tymely, NAVER, SAMSUNG, Tencent			
TEXT			
VinBase, SAMSUNG, du, BRA, synonym, DID, Tencent, SAMSUNG			
IMAGE			
SAMSUNG, du, BRA, synonym, DID, Tencent, SAMSUNG			
MULTIMODAL	VIDEO	AUDIO	GAMES
Dübverse	Hour One	Hour One	SYNFESYS Game Beyond Game
CODE	BUSINESS INTELLIGENCE		
codium, tabnine, soulmachines	TAIGER		

## Oceania

IMAGE	VIDEO	AUDIO
NightCafe, soulmachines	NightCafe, soulmachines	splash

 COMPANIES DEVELOPING TWO OR MORE TYPES OF MODELS

<https://www.blog.aiport.tech/p/the-first-truly-global-generative>



# Tool chains category

Assist  
tasks

Interaction  
modes

Prompt  
composition

Properties of  
model

# Assist tasks

Finding information faster in context

Generating code

Reasoning about code

Transforming code into something ..

Requirement

Design

Develop

Testing

Deploy

Software Delivery Lifecycle

# Interaction modes

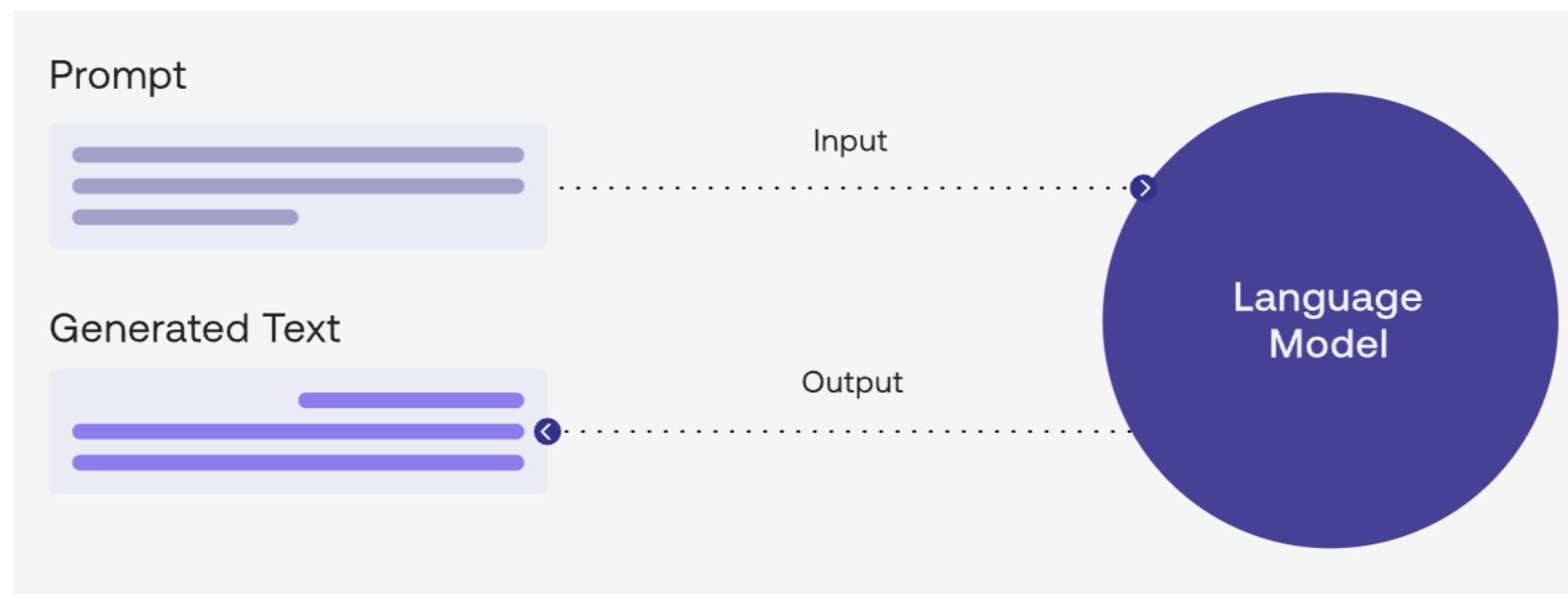
Chat interfaces

In-line assistance (typing in code editor)

CLI

# Prompt composition

Prompt engineering  
Compose prompt from user input and context



<https://platform.openai.com/docs/guides/prompt-engineering>

# Better Prompt

Write clear instructions

Provide reference text

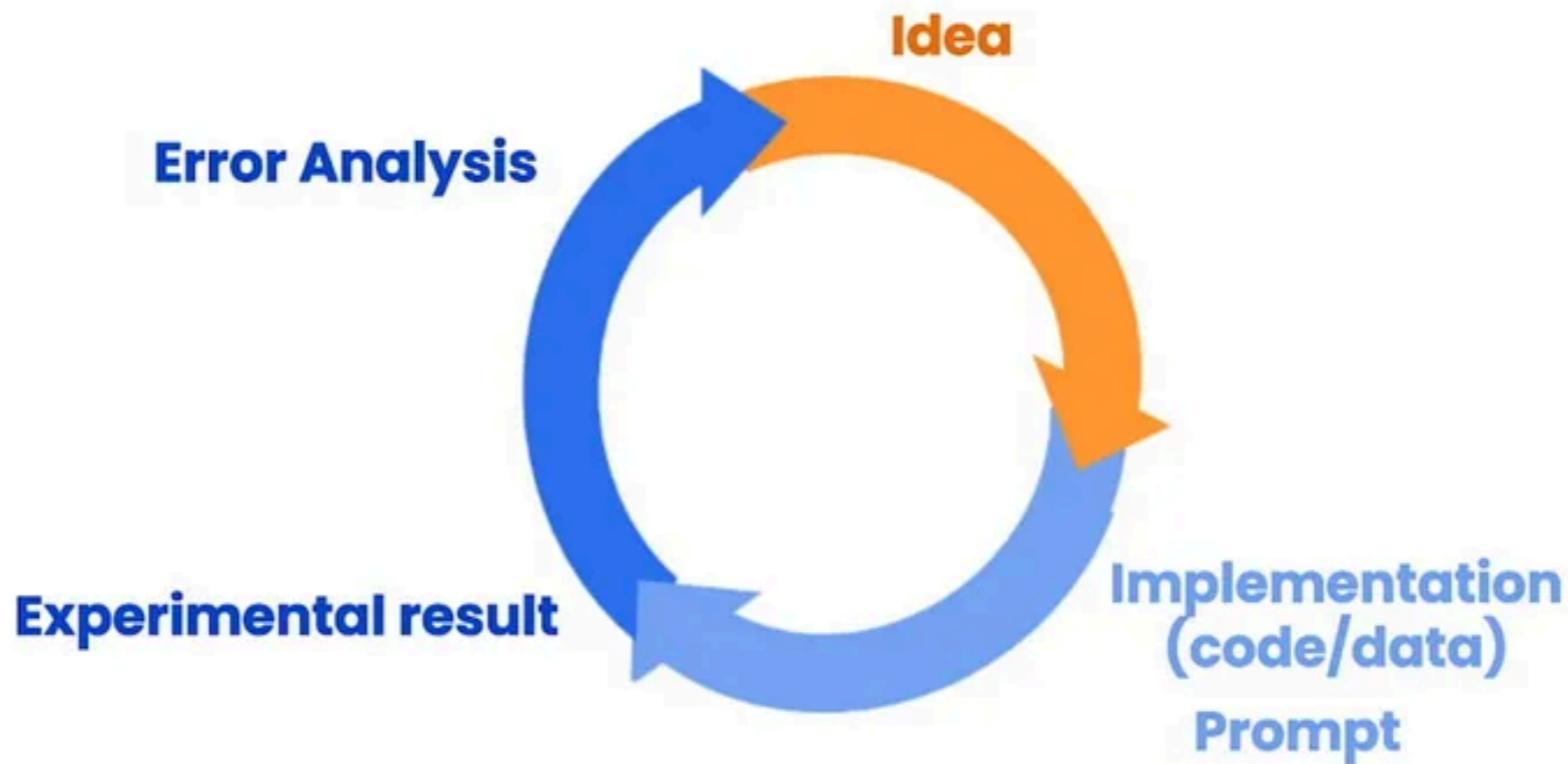
Split complex tasks into simpler subtasks

Give the model time to think

Testing and improve ...

<https://platform.openai.com/docs/guides/prompt-engineering>

# Iterative Prompt Development



## Iterative Process

- Try something
- Analyze where the result does not give what you want
- Clarify instructions, give more time to think
- Refine prompts with a batch of examples

<https://www.deeplearning.ai/short-courses/chatgpt-prompt-engineering-for-developers/>

# List of tools

Tool	Task	Interaction
<b>ChatGPT/Gemini/Bing</b>	All	Chat
<b>GitHub Copilot</b>	Code generation	In-line assistance
<b>GitHub Copilot Chat</b>	All	Chat
<b>GPT Engineer</b>	Code generation	CLI
<b>WireGen</b>	Wireframe generation	Chat
<b>Make real</b>	UI generation	UI
<b>V0.dev</b>	UI generation	Chat

# Chat and Search



# Chat and Search

Gemini

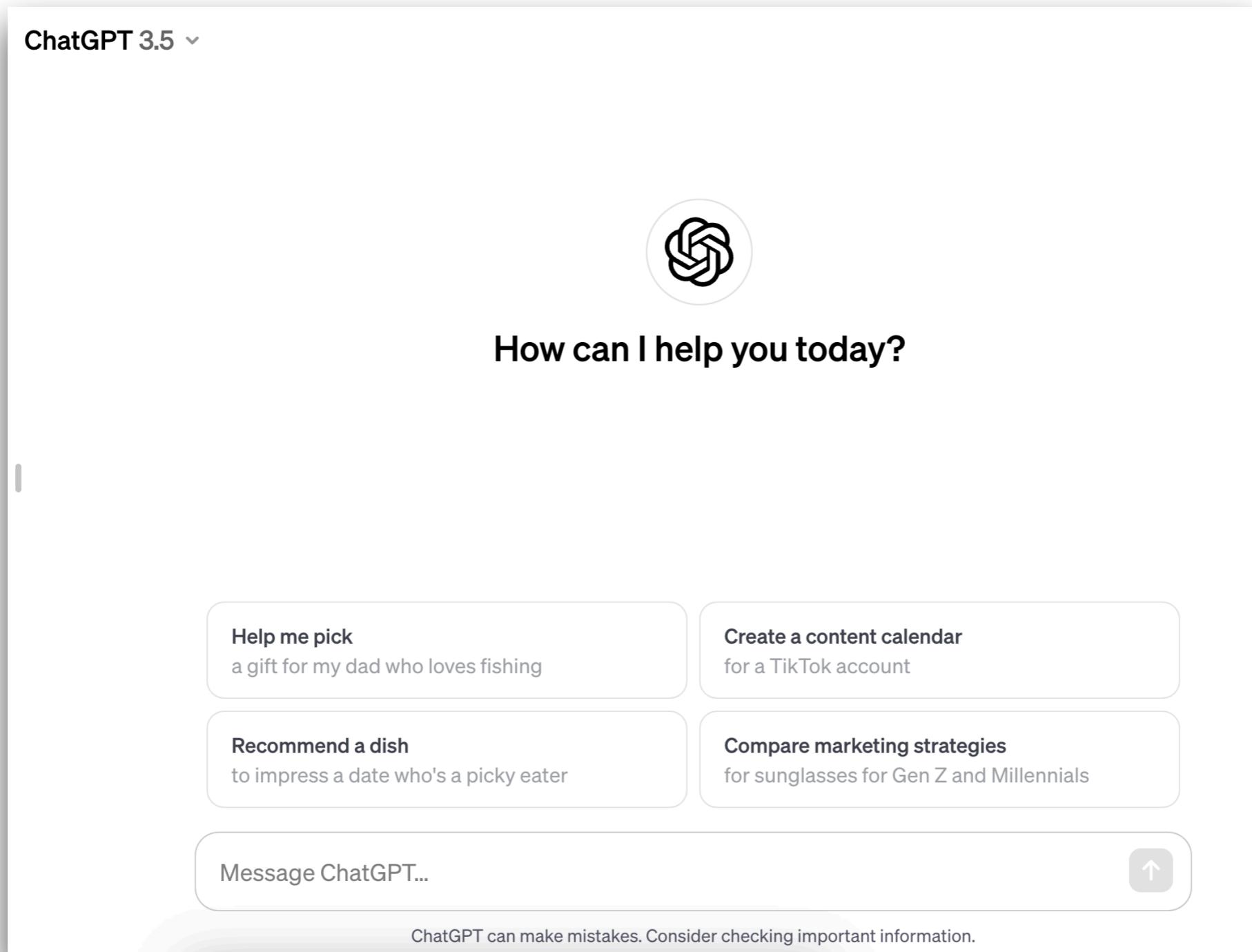


ChatGPT



# ChatGPT from OpenAI

ChatGPT 3.5 ▾



The image shows the ChatGPT interface. At the top left is a dropdown menu labeled "ChatGPT 3.5". In the center is a circular icon containing a stylized AI logo. Below it is the text "How can I help you today?". There are four suggestion cards: 1. "Help me pick a gift for my dad who loves fishing" 2. "Create a content calendar for a TikTok account" 3. "Recommend a dish to impress a date who's a picky eater" 4. "Compare marketing strategies for sunglasses for Gen Z and Millennials". At the bottom is a message input field with the placeholder "Message ChatGPT..." and an upward arrow icon. A note at the bottom states "ChatGPT can make mistakes. Consider checking important information."

Help me pick  
a gift for my dad who loves fishing

Create a content calendar  
for a TikTok account

Recommend a dish  
to impress a date who's a picky eater

Compare marketing strategies  
for sunglasses for Gen Z and Millennials

Message ChatGPT... 

ChatGPT can make mistakes. Consider checking important information.

<https://chat.openai.com/>

# Google Gemini

Hello, somkiat

How can I help you today?

Help create a weekly  
meal plan for two



Settle a debate: how  
should you store  
bread?



Improve the readability  
of the following code

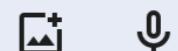


Revise my writing and  
fix my grammar



Your conversations are processed by human reviewers to improve the technologies powering Gemini

Enter a prompt here



Gemini may display inaccurate info, including about people, so double-check its responses. [Your privacy & Gemini Apps](#)

<https://gemini.google.com/app>

# Microsoft Bing

Microsoft Bing

SEARCH

CHAT

ไทย somkiat



Bing is your AI-powered copilot for the web



What's the next trend in fashion and where should I shop to find it?



Create a table that helps me plan meals for the next two weeks



What are the top three vehicles for a family of six on a budget?



Create a slogan for a new social media platform that specializes in sarcasm



What's the best-reviewed coffee grinder?



Write a joke that my coworkers would find funny



Write an original fable about a fish and a frog finding love

Bing is powered by AI, so surprises and mistakes are possible. Please share feedback so we can improve! [Terms](#) | [Privacy](#)

<https://www.bing.com/search?q=Bing+AI&showconv=1&FORM=hpcodx>

# Design

# Canva

The screenshot shows the Canva interface with two main sections: 'Magic Media' on the left and 'Storyboard' on the right.

**Magic Media (Left Side):**

- Design:** Shows a placeholder for an image with the text "Blue and green space rover lost in a strange planet".
- Brand:** Placeholder text: "Describe the image you want and we'll generate it for you."
- Elements:** Placeholder text: "Blue and green space rover lost in a strange planet".
- Text:** Placeholder text: "Blue and green space rover lost in a strange planet".
- Uploads:** Placeholder text: "Blue and green space rover lost in a strange planet".
- Apps:** Placeholder text: "Blue and green space rover lost in a strange planet".
- Magic Media:** Placeholder text: "Blue and green space rover lost in a strange planet".

**Storyboard (Right Side):**

- Storyboard Title:** CO Storyboard
- Panel 1:** A landscape scene with clouds and green hills. It includes annotations: "Add sandstorm CGI in post prod" (Sam), "APPROVED BY DIRECTOR" (Vin), and "1".
- Description:** Day • Establishing Shot • Pan  
Action: Opening shot of the barren, red Martian landscape.  
We hear the sound of a rover approaching. Cut to the inside
- Generate AI Images:** A purple button at the bottom of the interface.

<https://www.canva.com/ai-image-generator/>

# FigJam AI



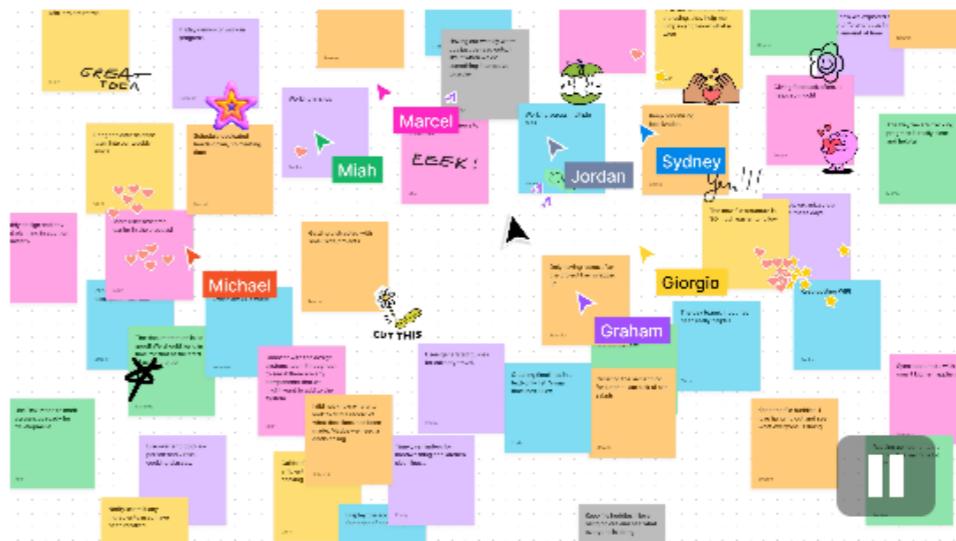
Products ▾ Enterprise ▾ Pricing Resources ▾ Community ▾ Contact sales Log in

Get started for free

## Redesign the way you jam with FigJam AI

FigJam AI helps you instantly visualize ideas, suggest best practices, and automate tedious tasks.

Try it out



<https://www.figma.com/figjam/ai/>

# Notion AI

## Novel Ideas

Write me 5 novel ideas

1. A world where people's dreams are connected and used to create a utopia.
2. A society where everyone has a unique superpower, but using it comes at a cost.
3. A time-traveling detective must solve a series of murders that have ripple effects throughout history.
4. A group of survivors must navigate a post-apocalyptic world where the sun has vanished.
5. A person discovers they have the ability to enter and manipulate memories, but using this power comes with unforeseen consequences.

✨ Tell AI what to do next...



⚠️ AI responses can be inaccurate or misleading. Learn more



✓ Replace selection

≡ Insert below

↗ Continue writing

☰ Make longer

↶ Try again

🗑 Discard

<https://www.notion.so/product/ai>

# **Image/VDO/3D**

# Mid Journey

<https://www.midjourney.com/>

# Hugging Face



Search models, datasets, users...

Models

Datasets

Spaces

Docs

Solutions

Pricing



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Sign Up



## The AI community building the future.

The platform where the machine learning community collaborates on models, datasets, and applications.

Tasks   Libraries   Datasets   Languages   Licenses   Other

Filter Tasks by name

Multimodal

- Text-to-Image
- Image-to-Text
- Text-to-Video
- Visual Question Answering
- Document Question Answering
- Graph Machine Learning

Computer Vision

- Depth Estimation
- Image Classification
- Object Detection
- Image Segmentation
- Image-to-Image
- Unconditional Image Generation
- Video Classification
- Zero-Shot Image Classification

Natural Language Processing

- Text Classification
- Token Classification
- Table Question Answering
- Question Answering
- Zero-Shot Classification
- Translation
- Summarization
- Conversational
- Text Generation
- Text2Text Generation
- Sentence Similarity

Audio

- Text-to-Speech
- Automatic Speech Recognition
- Audio-to-Audio
- Audio Classification
- Voice Activity Detection

Tabular

Models 469,541   Filter by name

- meta-llama/Llama-2-70b  
Text Generation • Updated 4 days ago • 25.2k • 64
- stabilityai/stable-diffusion-xl-base-0.9  
Updated 6 days ago • 2.01k • 393
- openchat/openchat  
Text Generation • Updated 2 days ago • 1.3k • 136
- illyasviel/ControlNet-v1-1  
Updated Apr 26 • 1.87k
- cerspense/zeroscope\_v2\_XL  
Updated 3 days ago • 2.66k • 334
- meta-llama/Llama-2-13b  
Text Generation • Updated 4 days ago • 328 • 64
- tiiuae/falcon-40b-instruct  
Text Generation • Updated 27 days ago • 288k • 899
- WizardLM/WizardCoder-15B-V1.0  
Text Generation • Updated 3 days ago • 12.5k • 332
- CompVis/stable-diffusion-v1-4  
Text-to-Image • Updated about 17 hours ago • 448k • 5.72k
- stabilityai/stable-diffusion-2-1  
Text-to-Image • Updated about 17 hours ago • 782k • 2.81k

<https://huggingface.co/>

# DALL.E 2 from OpenAI



Research ▾ Product ▾ Safety Company ▾

# DALL·E 2

DALL·E 2 is an AI system that can create realistic images and art from a description in natural language.

[Try DALL·E ↗](#)

[Follow on Instagram ↗](#)

<https://openai.com/dall-e-2>

# AI DeepFake !!



Celebrity Deepfakes AI Image Generator Premium Sign up Log in 日本語 English



## Online Deepfake Maker

オンラインフェイススワップツール

動画を作成する

<https://deepfakesweb.com/>

# **Working in SDLC**

# GenAI Impact developer productivity ?

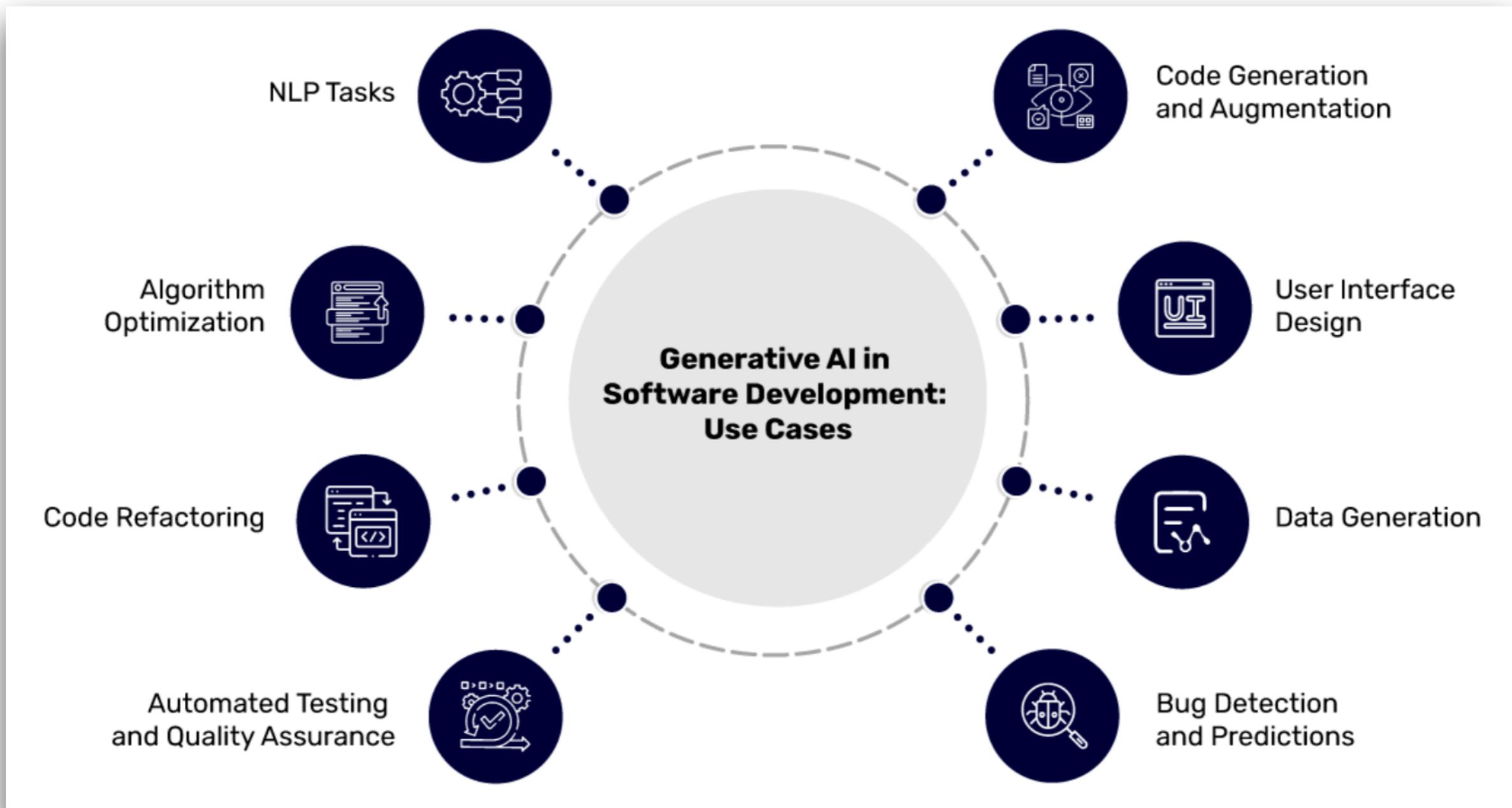
Automated  
simple tasks

Improve quality  
and reliability

Improve  
communication

Faster  
prototype

# SDLC



# SDLC

Requirement

Design

Develop

Testing

Deploy

# Requirement and Analysis

Requirement

Design

Develop

Testing

Deploy

Requirements writing and analysis

User story generation

# User Story Generator



Product ▾ Solutions ▾ Learn ▾ Tools ▾ Pricing

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Sign up for free

Improve your Agile development process with our AI-powered user story generator – create user stories quickly and easily for successful project outcomes.

Generate AI Agile User Story

Start with AI

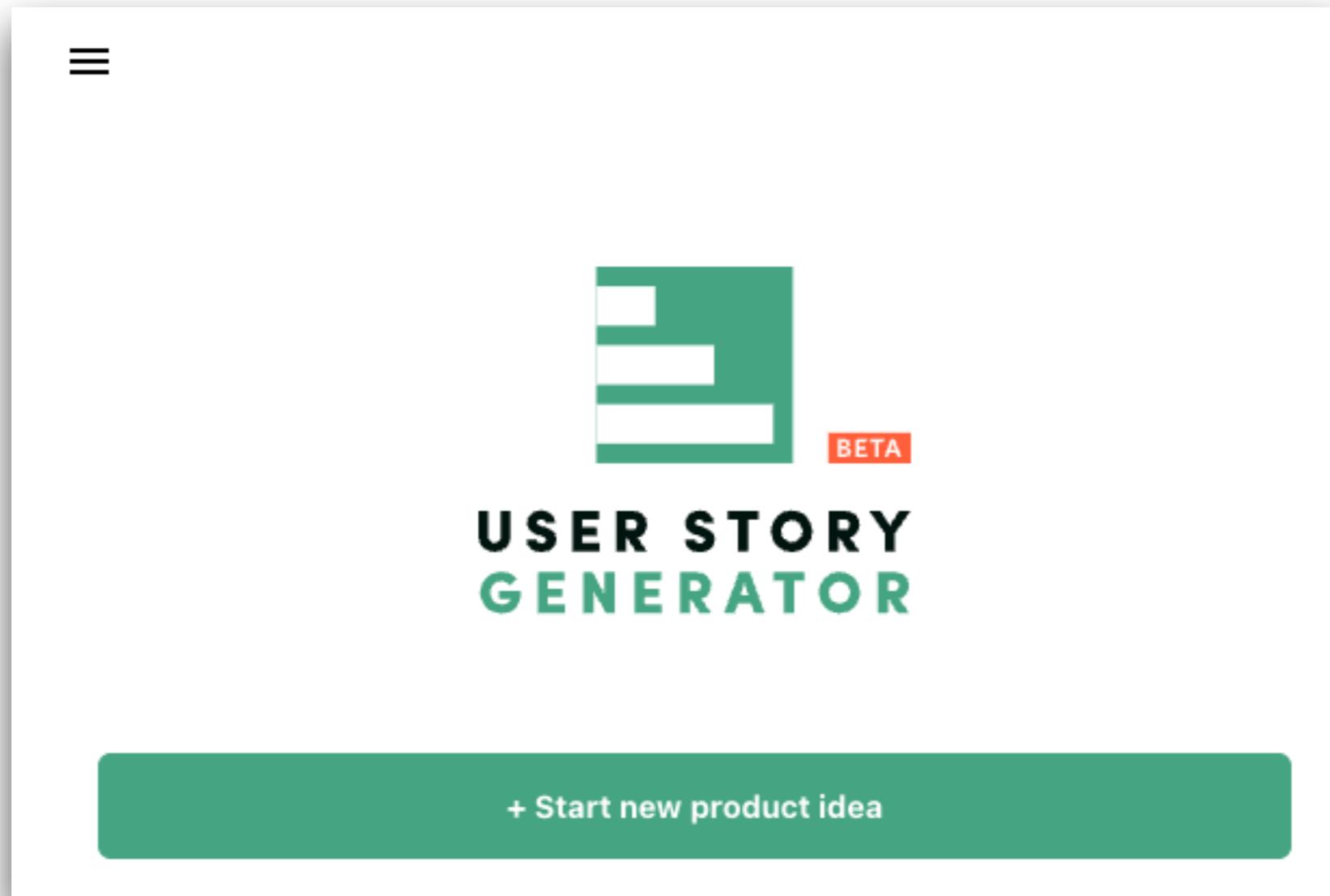
Dynamic AI builders 100% fully customizable Edit & download on-the-go Generate, publish, & share everywhere

The screenshot shows a dark-themed user interface for generating user stories. At the top, there's a navigation bar with icons for file operations (New, Open, Save, etc.) and a toolbar with various project management and design tools. Below this is a list of user stories:

- Wishlist Addition**
  - As a registered user,
  - I want to be able to add items to my wishlist,
  - So that I can save items I'm interested in for later purchase.
- Acceptance Criteria**
  - Given that I am a registered user, when I view a product, then I should see an "Add to Wishlist" button.
  - Given that I click the "Add to Wishlist" button, the product should be added to my wishlist.
  - Given that a product is in my wishlist, when I visit my wishlist page, then I should see all the products I've added.
  - Given that a product is in my wishlist, when I click on the product, then I should be taken to that product's page.
  - Given that a product is in my wishlist, I should have an option to remove it from my wishlist.

<https://www.taskade.com/generate/project-management/agile-user-story>

# User Story Generator



<https://userstorygenerator.ai/>

# Notion AI Template

User Story Writer [AI Powered Notion Template]

View template

Aa Title	≡ User Story	≡ Acceptance Criteria	≡ Notes	≡ Business Value	≡ Priority	≡ Stor
Password Reset Feature	As a user, I want to be able to reset my password using my registered email address or username associated with my account, so that I can regain access to my account in case I forget my password or suspect my account has been compromised.	- The user can reset their password using their registered email address or username associated with their account. - The password reset feature is accessible on all devices, including mobile and desktop. - The password reset email does not contain the user's password or other sensitive information. - The password reset link expires after a specified time period to prevent unauthorized access. - The password reset feature is not available if the user's account is locked or suspended.	- The password reset feature must be accessible to all users, including those with disabilities. - The password reset process must be secure and protect user data from potential threats. - The password reset feature must have a time limit for completion to prevent abuse. - The password reset feature must be logged for audit and security purposes. - The password reset feature must be tested thoroughly before deployment to ensure reliability and functionality.	High	High	3
Introduction of a	As a customer, I want to be	+ A user must be able to leave a rating for a	+ The product review feature should be	Critical	Critical	5

<https://www.notion.so/templates/user-story-writer-ai-powered-notion-template>

# Design

Requirement

Design

Develop

Testing

Deploy

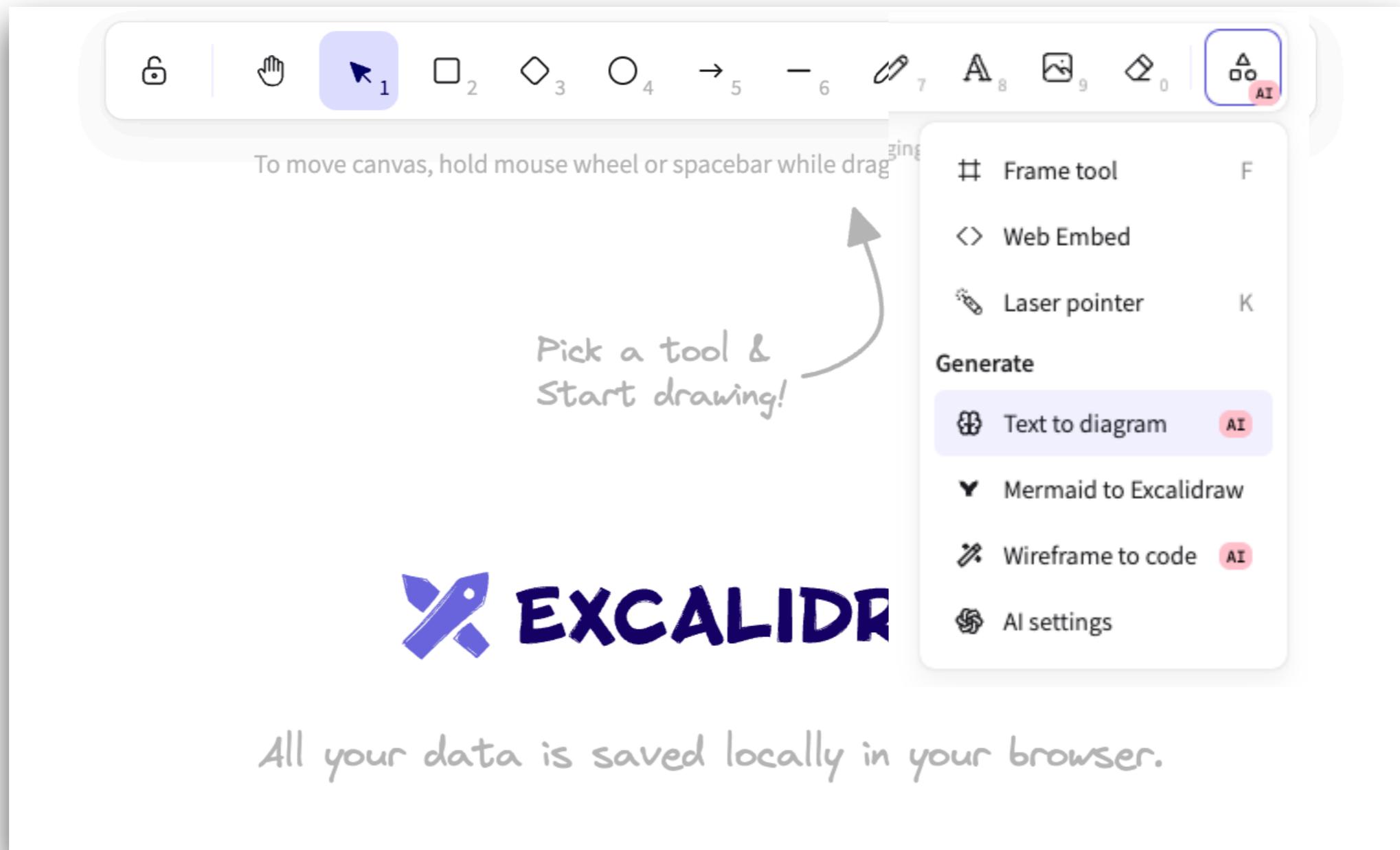
Architecture writing assistance

Sequence flow diagram generation

Data modeling

UX/UI design assistance

# Excalidraw with AI



<https://excalidraw.com/>

# Demo

[Text to diagram](#) AI Beta [Mermaid](#)

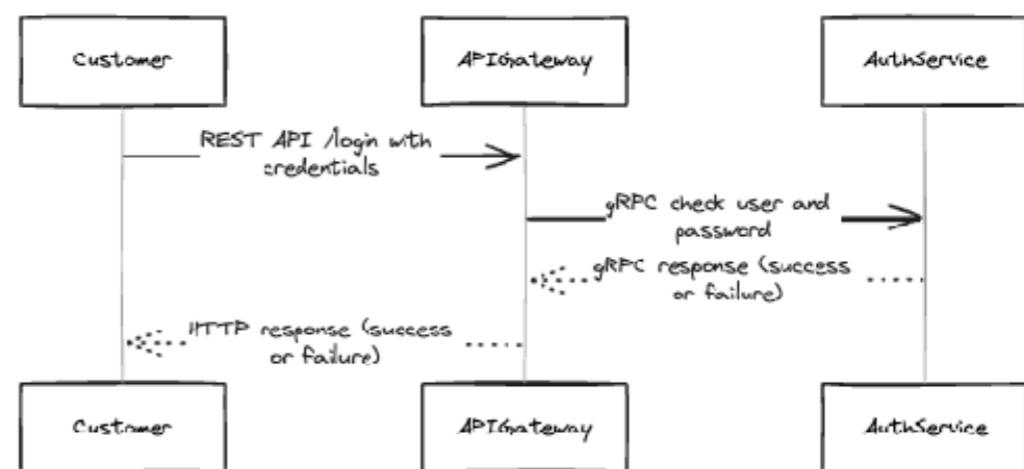
Currently we use Mermaid as a middle step, so you'll get best results if you describe a diagram, workflow, flow chart, and similar.

Prompt

9 requests left today

Try to generate authentication service from below  
1. Customer call api gateway with REST API /login  
2. Api gateway check user and password from auth service via gRPC  
3. API gateway send response to client

Preview



[Generate →](#)

[Cmd](#) [Enter](#)

[View as Mermaid →](#)

[Insert →](#)

# Develop

Requirement

Design

Develop

Testing

Deploy

Code generation

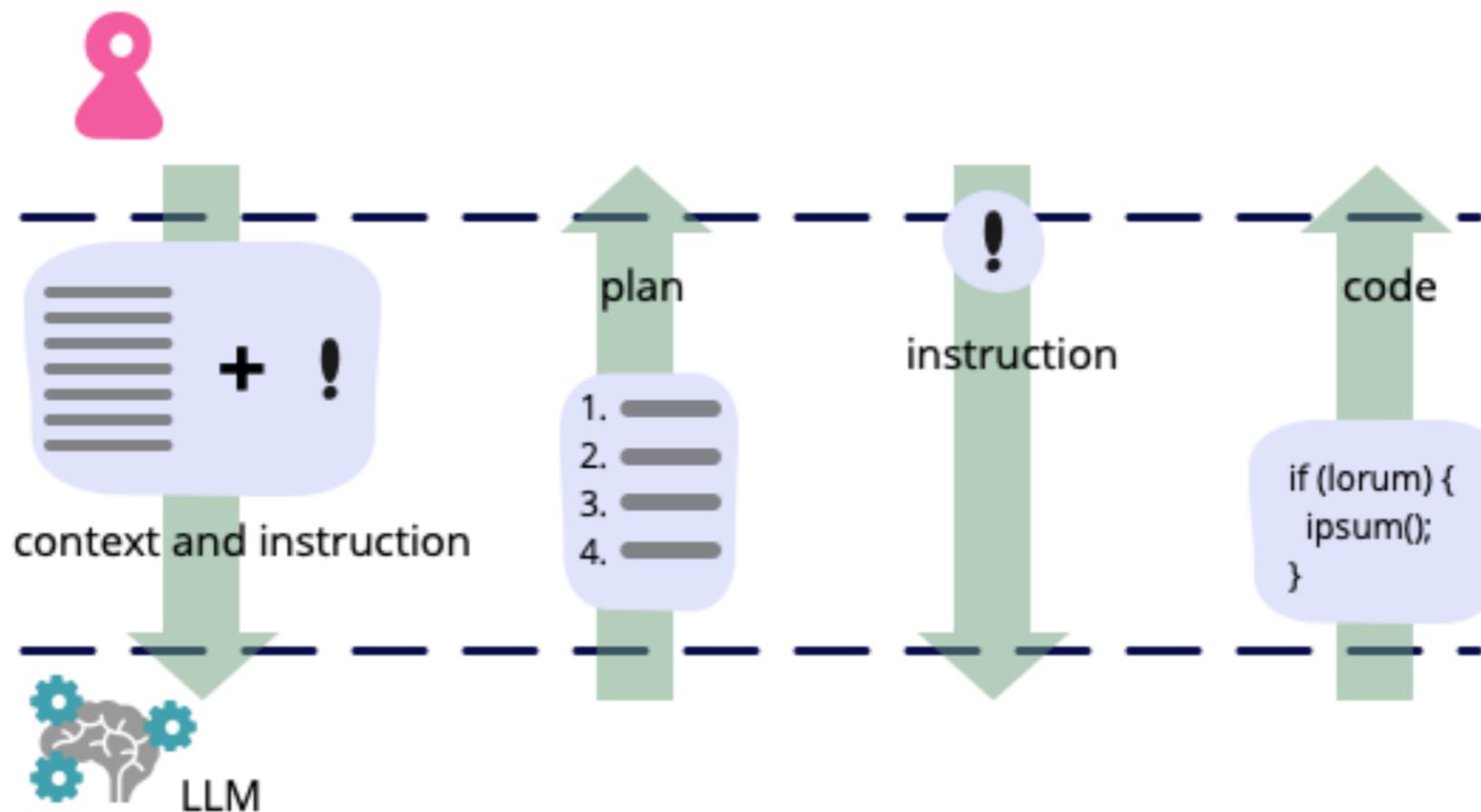
Review and explain code

Debugging code

Improve consistency

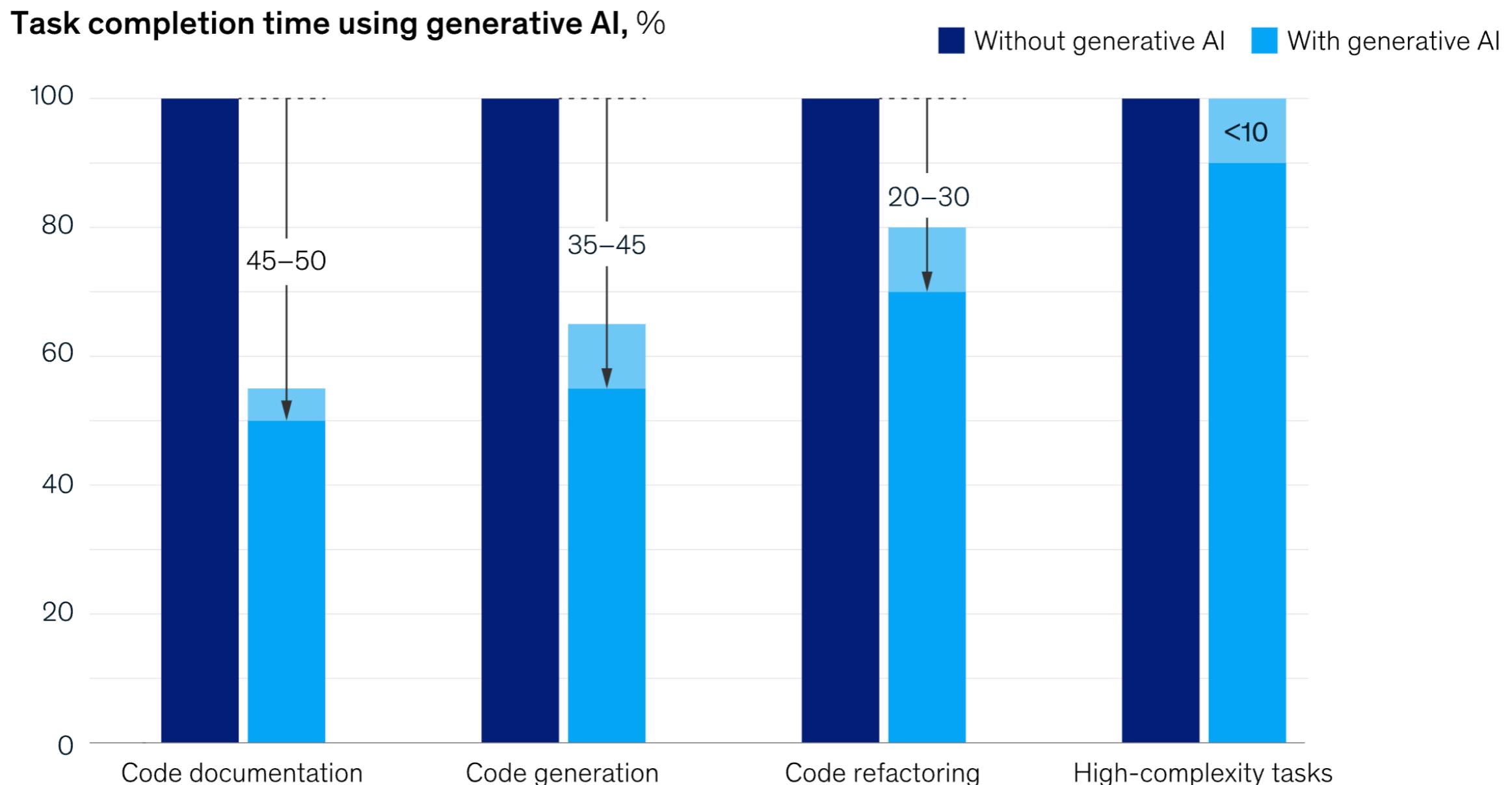
Code translation

# Development



# Development

**Generative AI can increase developer speed, but less so for complex tasks.**



<https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/unleashing-developer-productivity-with-generative-ai>

# Tools

GitHub Copilot

Codium AI

aider

Continue

Bito

# Using GitHub Copilot Chat correlates with better code quality

---

85% of developers felt more confident in their code quality when authoring code with GitHub Copilot and GitHub Copilot Chat

**85%**



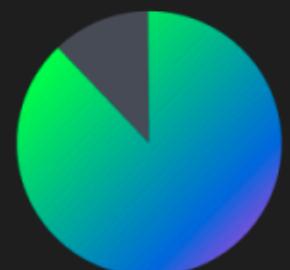
Code reviews were more actionable and completed 15% faster than without GitHub Copilot Chat

**15%**



88% of developers reported maintaining flow state with GitHub Copilot Chat

**88%**



# Code Review

The screenshot shows the homepage of the Codium AI website. The header features the Codium AI logo and navigation links for Products, Pricing, Blog, Contact, and About. The main title "Generating meaningful tests for busy devs" is displayed prominently in large white text against a dark blue background. Below the title, a descriptive paragraph explains the product's purpose: "With CodiumAI, you get non-trivial tests (and trivial, too!) suggested right inside your IDE or Git platform, so you can code smart and stay confident when you push. **Code, as you meant it.**" At the bottom, there is a call-to-action button labeled "Get your FREE Codiumate now:" followed by two smaller buttons for "VS Code" and "JetBrains".

**Codium<sup>ai</sup>** Products ▾ Pricing Blog Contact About ▾

# Generating meaningful tests for busy devs

With CodiumAI, you get non-trivial tests (and trivial, too!) suggested right inside your IDE or Git platform, so you can code smart and stay confident when you push.  
**Code, as you meant it.**

Get your FREE Codiumate now:

VS Code > JetBrains >

<https://www.codium.ai/>

# Code Review

Introducing **Codeium Teams** →

The modern coding  
**superpower**

AI assistan|

[Get Extension >](#)

[Try in browser](#)

<https://codeium.com/>

# AI Pair Programming



```
macbook$ aider demo.py  
Added demo.py to the chat  
Using git repo: .git
```

---

```
demo.py> add a name param to the `greeting` function. add all the types.
```

I will update the `greeting` function to accept a `name` parameter and include type hints for the parameter and the return type.

```
demo.py  
<<<<< ORIGINAL  
def greeting():  
    print("Hello, world!")  
=====  
def greeting(name: str) -> None:  
    print(f"Hello, {name}!")  
>>>>> UPDATED
```

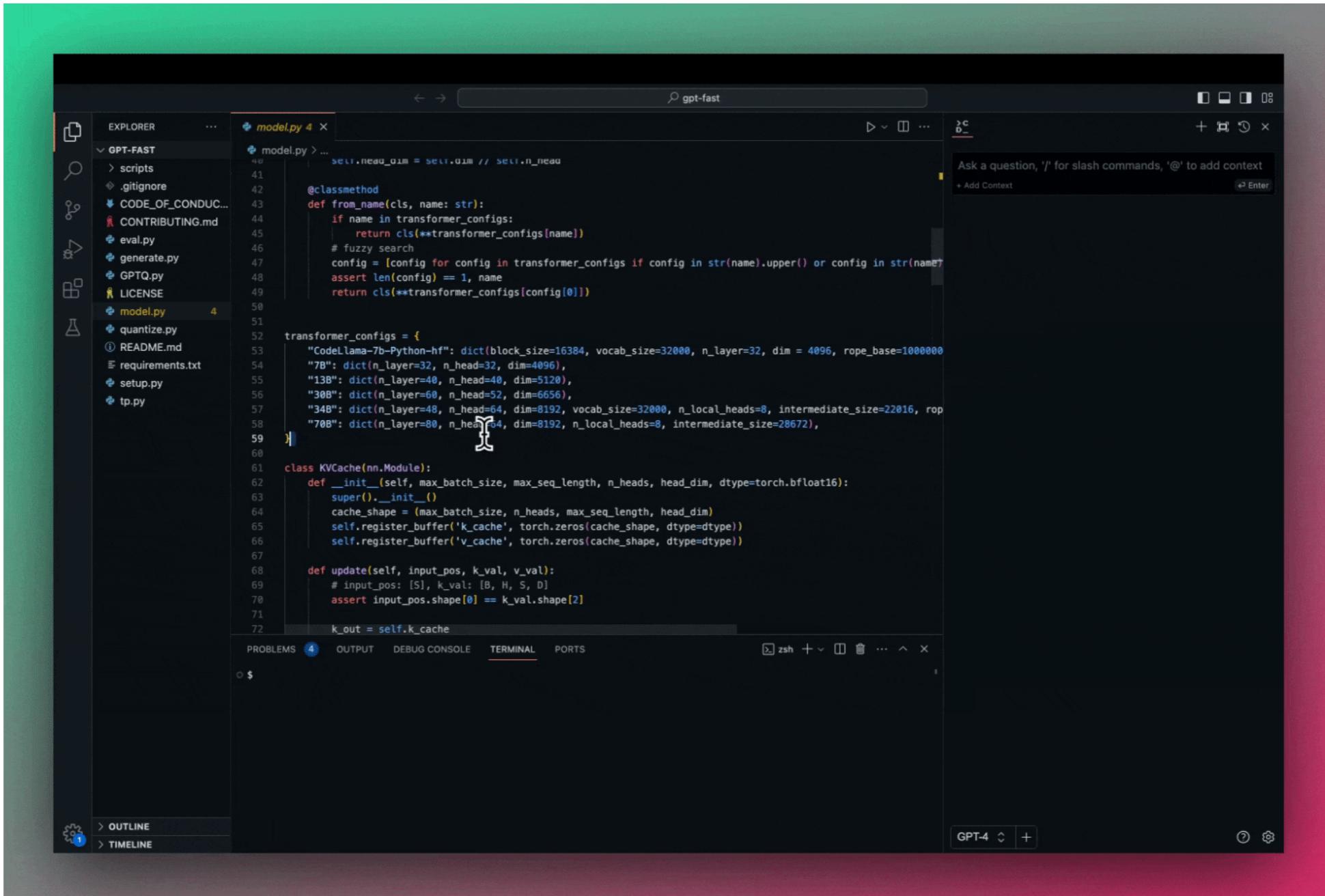
Applied edit to demo.py  
Commit 9237455 aider: Updated greeting function to accept a name parameter and include type hints.

---

```
demo.py> █
```

<https://github.com/paul-gauthier/aider>

# Auto pilot with Code



```
model.py 4
40     self.nhead_dim = self.dim // self.n_head
41
42     @classmethod
43     def from_name(cls, name: str):
44         if name in transformer_configs:
45             return cls(**transformer_configs[name])
46         # fuzzy search
47         config = [config for config in transformer_configs if config in str(name).upper() or config in str(name)]
48         assert len(config) == 1, name
49         return cls(**transformer_configs[config[0]])
50
51     transformer_configs = {
52         "CodeLlama-7b-Python-hf": dict(block_size=16384, vocab_size=32000, n_layer=32, dim = 4096, rope_base=1000000
53         "7B": dict(n_layer=32, n_head=32, dim=4096),
54         "13B": dict(n_layer=40, n_head=40, dim=5120),
55         "30B": dict(n_layer=60, n_head=52, dim=6656),
56         "34B": dict(n_layer=48, n_head=64, dim=8192, vocab_size=32000, n_local_heads=8, intermediate_size=22016, rope_base=10000000),
57         "70B": dict(n_layer=80, n_head=64, dim=8192, n_local_heads=8, intermediate_size=28672),
58     }
59
60     class KVCache(nn.Module):
61         def __init__(self, max_batch_size, max_seq_length, n_heads, head_dim, dtype=torch.bfloat16):
62             super().__init__()
63             cache_shape = (max_batch_size, n_heads, max_seq_length, head_dim)
64             self.register_buffer('k_cache', torch.zeros(cache_shape, dtype=dtype))
65             self.register_buffer('v_cache', torch.zeros(cache_shape, dtype=dtype))
66
67         def update(self, input_pos, k_val, v_val):
68             # input_pos: [S], k_val: [B, H, S, D]
69             assert input_pos.shape[0] == k_val.shape[2]
70
71             k_out = self.k_cache
72
PROBLEMS 4 OUTPUT DEBUG CONSOLE TERMINAL PORTS zsh + ... ^ X
$
```

<https://github.com/continuedev/continue>

# AI Code Review



Product ▾ Enterprise ▾ Resources ▾ Pricing Docs Sign in Get Started for Free

Cut review time by 50%

# High quality AI code reviews

[Get Started →](#)

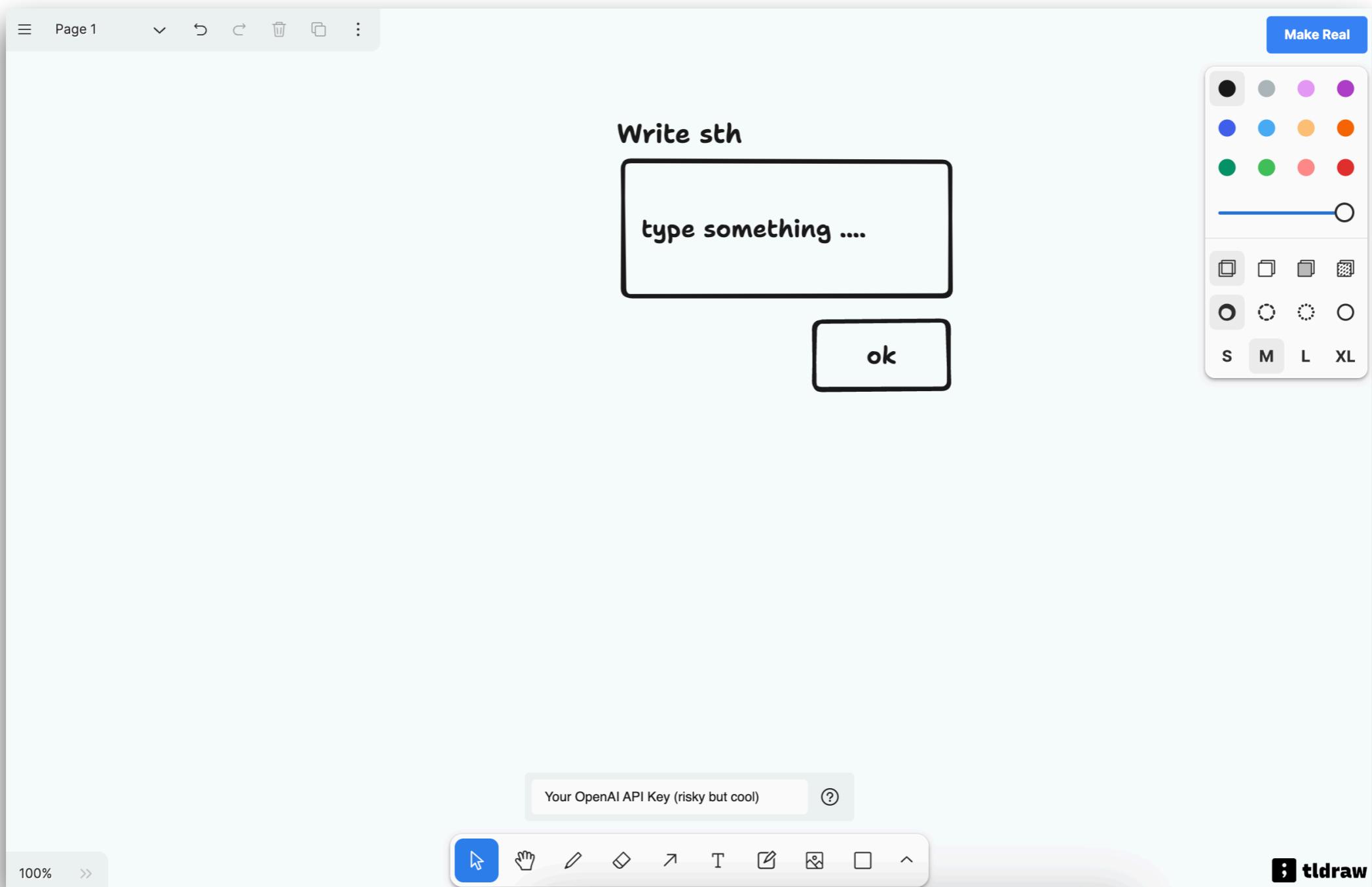
[Get a demo](#)

The screenshot shows a GitLab-like interface for a merge request. On the left, there's a sidebar with 'Merge requests' (11). The main area shows a merge request from 'bitoco / services / Merge requests / !264'. It has a status of 'Merged' and 'Code completion' with a 'code-completion' label. The 'Overview' tab is selected, showing metrics: 22 commits, 3 pipelines, 0 changes, and 15 issues. A large callout box highlights the 'Watch demo' button. Below it, the 'Code Review Agent Run Status' section lists successful AI-based review, static analysis, and security checks. The 'Code Review' section provides a summary of the changes, mentioning feature addition, configuration changes, and unit tests added. It also notes an estimated effort of 2. The 'High-level Feedback' section is partially visible.

Accessible, accurate AI tools trusted by developers across the world.

<https://bito.ai/>

# Make Real



<https://github.com/tldraw/make-real>

# v0.dev

Private Beta

A "report an issue" modal

Product categories ↗ Hero section ↗ Contact form ↗ Ecommerce dashboard ↗

New Generations    Featured

page for a soccer game,...

A hero section for a...

A website in a black and...

product tour like appcues

<https://v0.dev/>

# Screenshot to Code

Screenshot to Code

Sign in   Get started

## Build User Interfaces 10x Faster

Convert any screenshot or design to clean code (with support for most frameworks)

Get started   GitHub 46,018 stars

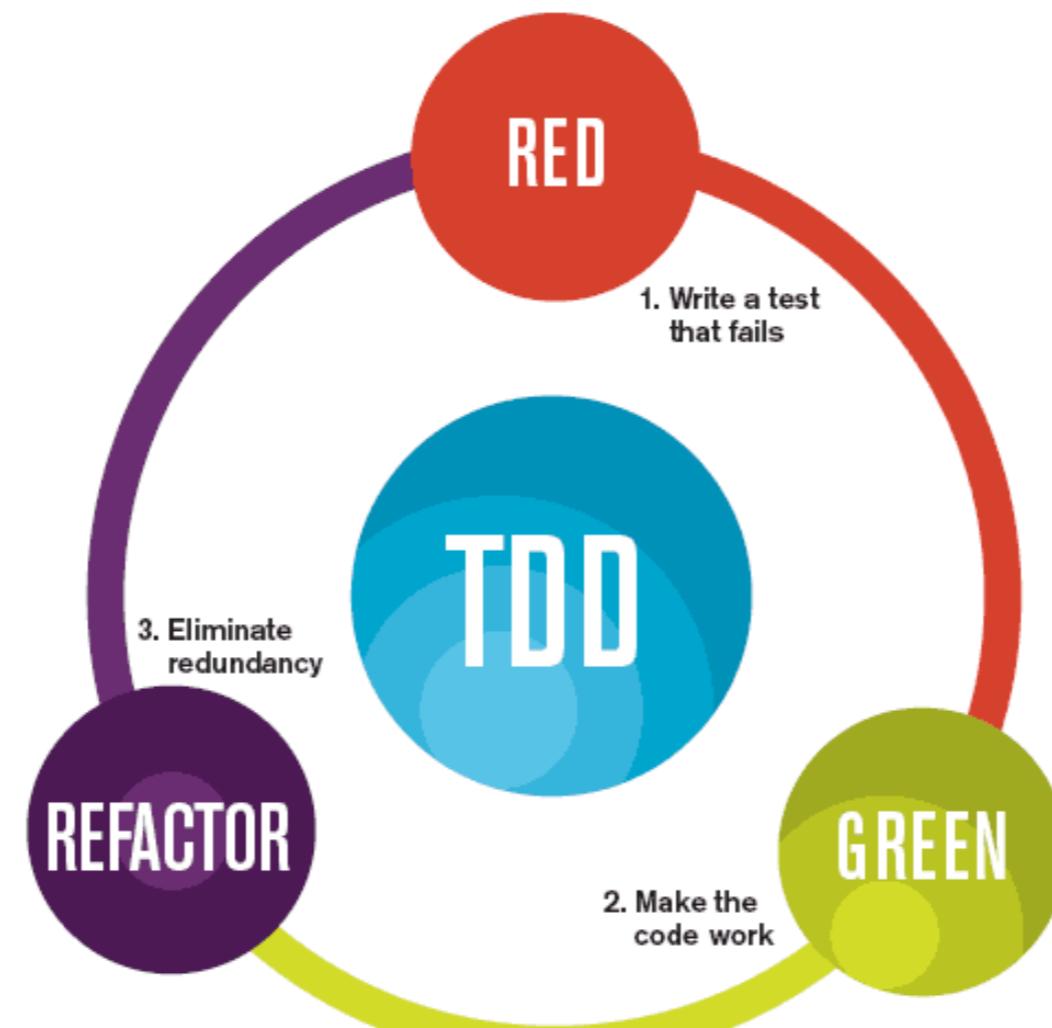
#1 tool used by developers and designers from leading companies. Fully open source with 46,000+ stars on GitHub.

Microsoft   Amazon   MIT

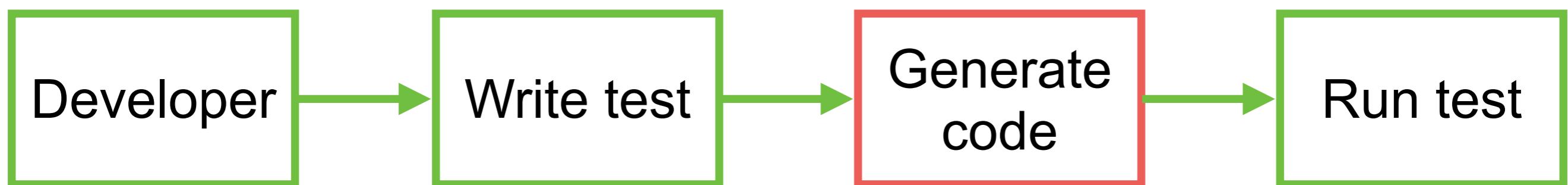
Stanford   ByteDance   Baidu 百度

<https://screenshottocode.com/>

# Test-Driven-Development



# Test-Driven-Development



# Testing

Requirement

Design

Develop

Testing

Deploy

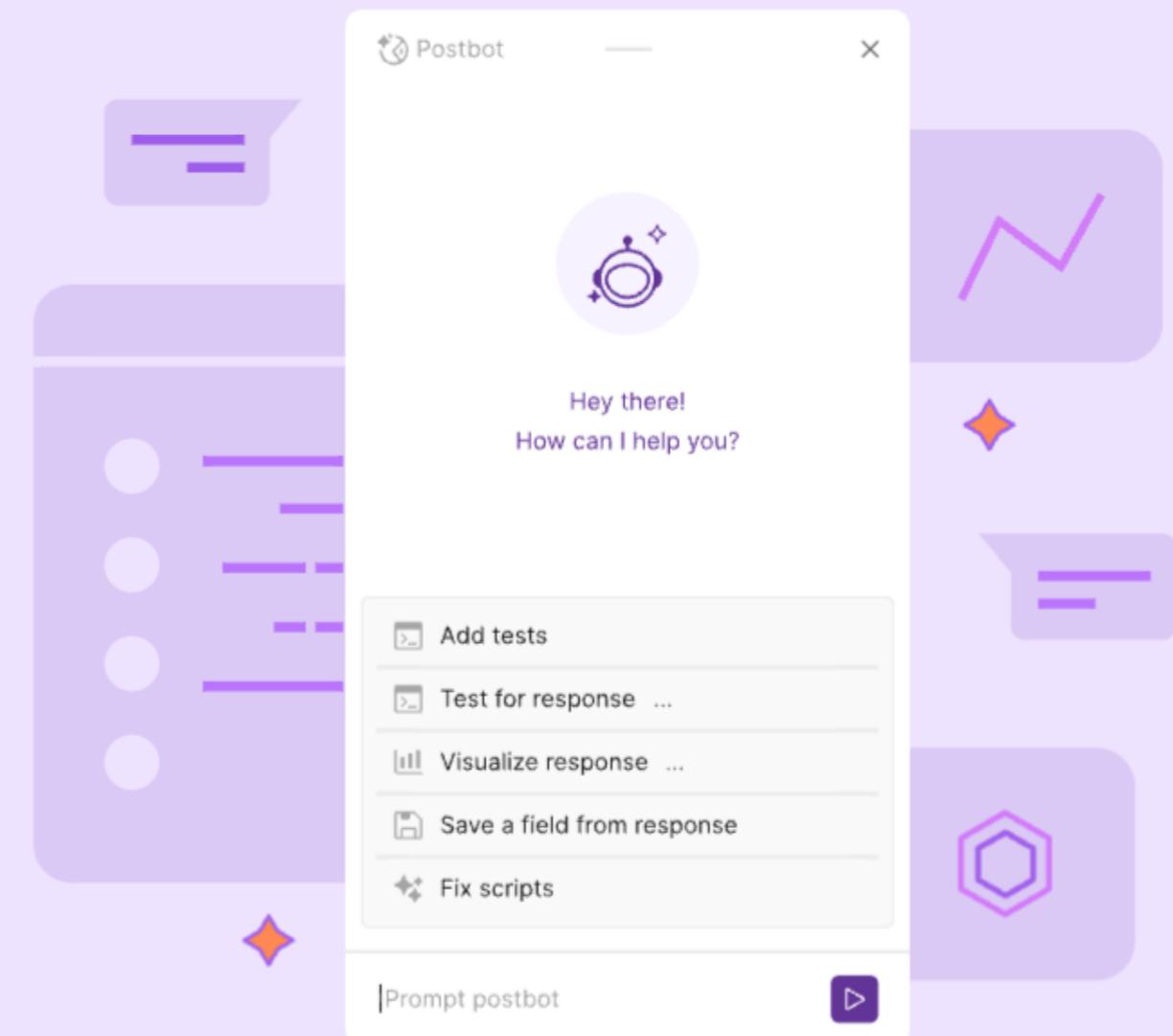
Test cases writing  
Test code generation  
Bug detection

# Testing with Postman

**Postbot, our AI-powered assistant, will supercharge your API development.**

Speed up your most common API development workflows with natural-language input, conversational interactions, and contextual suggestions.

[Get Started](#)



<https://www.postman.com/product/postbot/>

# PostBot

The screenshot shows the Postman application interface. A floating window titled "Postbot" is open, displaying a "New on Postbot" message and a list of actions. The main window shows a GET request to `https://jsonplaceholder.typicode.com/users/1`. The "Tests" tab is selected in the request details. The response body is displayed in "Pretty" format, showing a JSON object with fields like id, name, username, email, and address. The status bar indicates a 200 OK response.

New on Postbot

I can auto-complete tests to help you work faster!

If you have a response available and type `pm.test()`, I'll suggest important tests that you might be looking for. Once you've entered the test name, I'll also provide the code to validate what you need.

- Add tests to this request
- Test for response...
- Visualize response...
- Save a field from response
- Add documentation

Hi! How can I help? >

```
1 {  
2   "id": 1,  
3   "name": "Leanne Graham",  
4   "username": "Bret",  
5   "email": "Sincere@april.biz",  
6   "address": {  
7     "street": "Kulas Light",  
8     "suite": "Apt. 556".  
9   }  
10 }
```

<https://www.postman.com/product/postbot/>

# 6 Keys software quality

Defect density

Code duplication

Hardcode token/key

Security  
vulnerabilities

Outdated package

Non-permissive  
opensource libraries

# Deploy and manage

Requirement

Design

Develop

Testing

Deploy

CI/CD pipeline

Infrastructure as a code

Automated script

Performance and monitoring suggestion

Document generation

AI-assist support

ChatOps, AIOps

# PromptOps



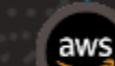
Solutions ▾ Resources ▾ Contact us Log In

## ChatGPT for your DevOps Teams

Turn DevOps tasks into automated workflows with a single prompt straight from Slack

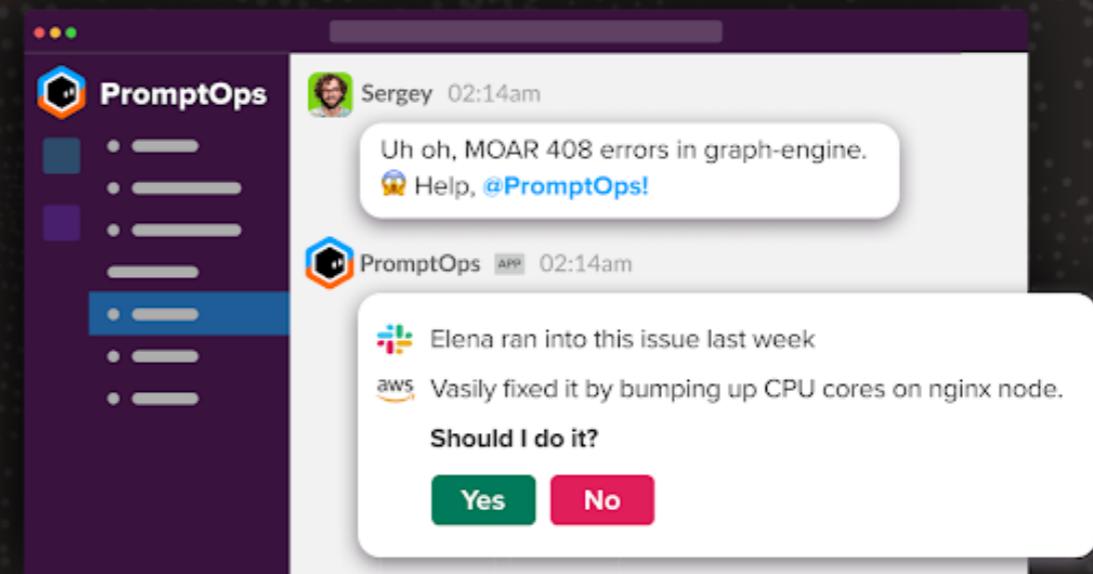
Get started

Learn More



PromptOps APP

Hello, I'm PromptOps, your DevOps virtual assistant for managing, troubleshooting, and running DevOps tasks directly from Slack!



Acknowledge

Resolve

Run a play ▾

Edit code

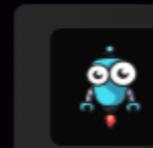
<https://www.promptops.com/devops/>

# ChatOps for DevOps

[Product](#) ▾[How it Works](#)[Learn](#) ▾[Company](#) ▾[Uptime](#)[Sign In](#)[Book a demo](#)[Sign Up](#)

## > ChatGPT for DevOps

Converse with your engineering platforms, powered by LLM.  
A virtual teammate to handle DevOps requests so you can handle the rest.

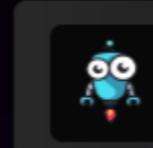
[Add Kubi to Slack](#)

Kubi (DevOps)

@Alerts I got an alert from Prometheus:



Deployment 'alert-manager' on namespace 'Openfaas' is experiencing high traffic



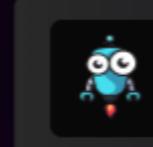
Kubi (DevOps)

@Alerts Should I increase the number of replicas on 'alert-manager'?



Jeff (R&amp;D)

Yes



Kubi (DevOps)



✓ The following deployment has been updated:

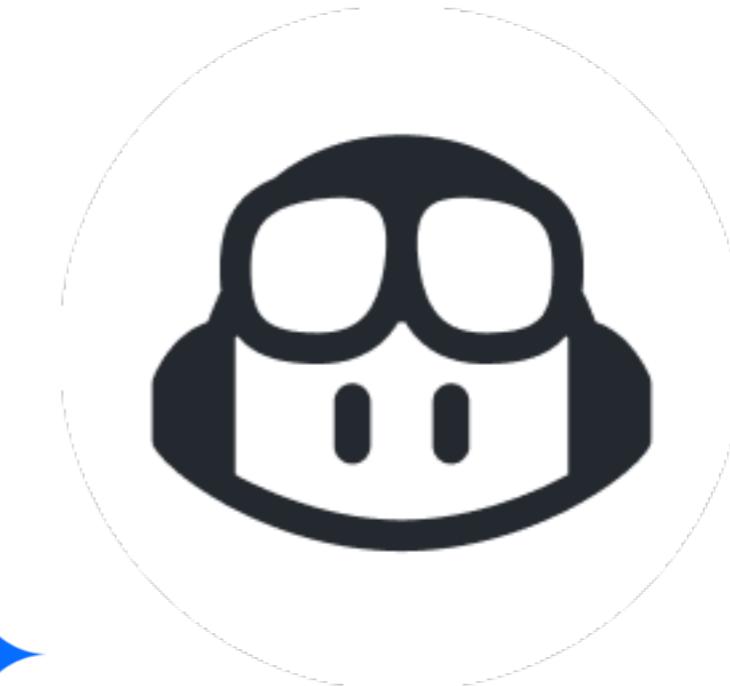
Deployment: alert-manager

Namespace: Openfaas

Replicas: 3

<https://www.kubiya.ai/>

# Demo



Gemini

<https://github.com/up1/workshop-ai-with-technical-team>



# **Risks when using Generative AI**

# Risks

Quality of output generated

Explainability of decisions

Security policy !!

Sensitive data !!

# Tips

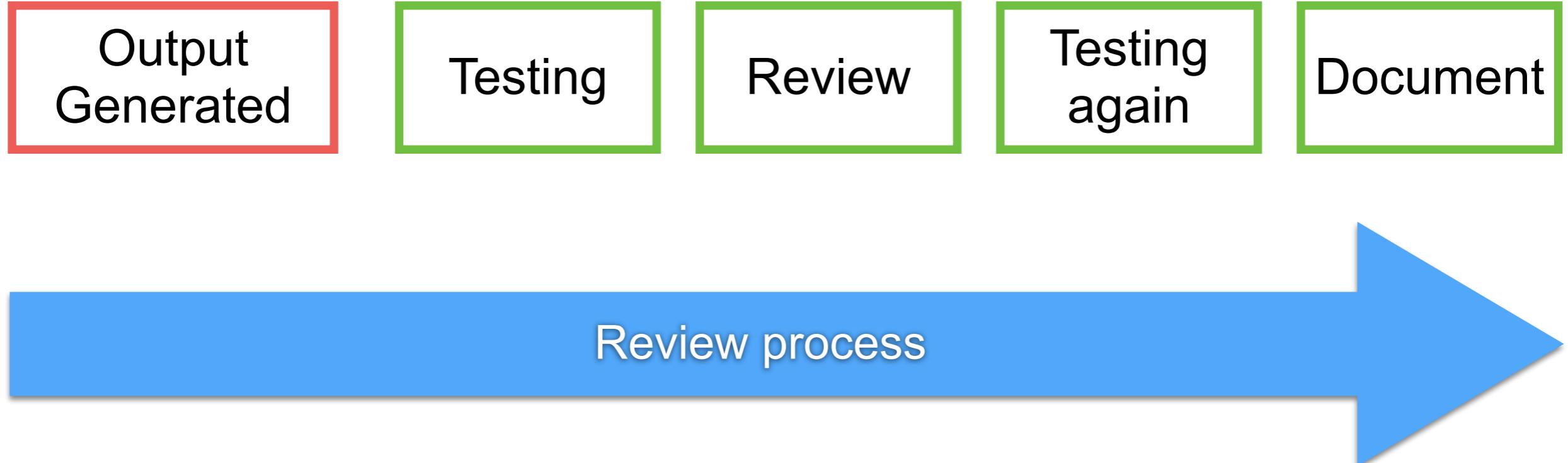
Understand what you want

Modular approach

Clear and Precise inputs

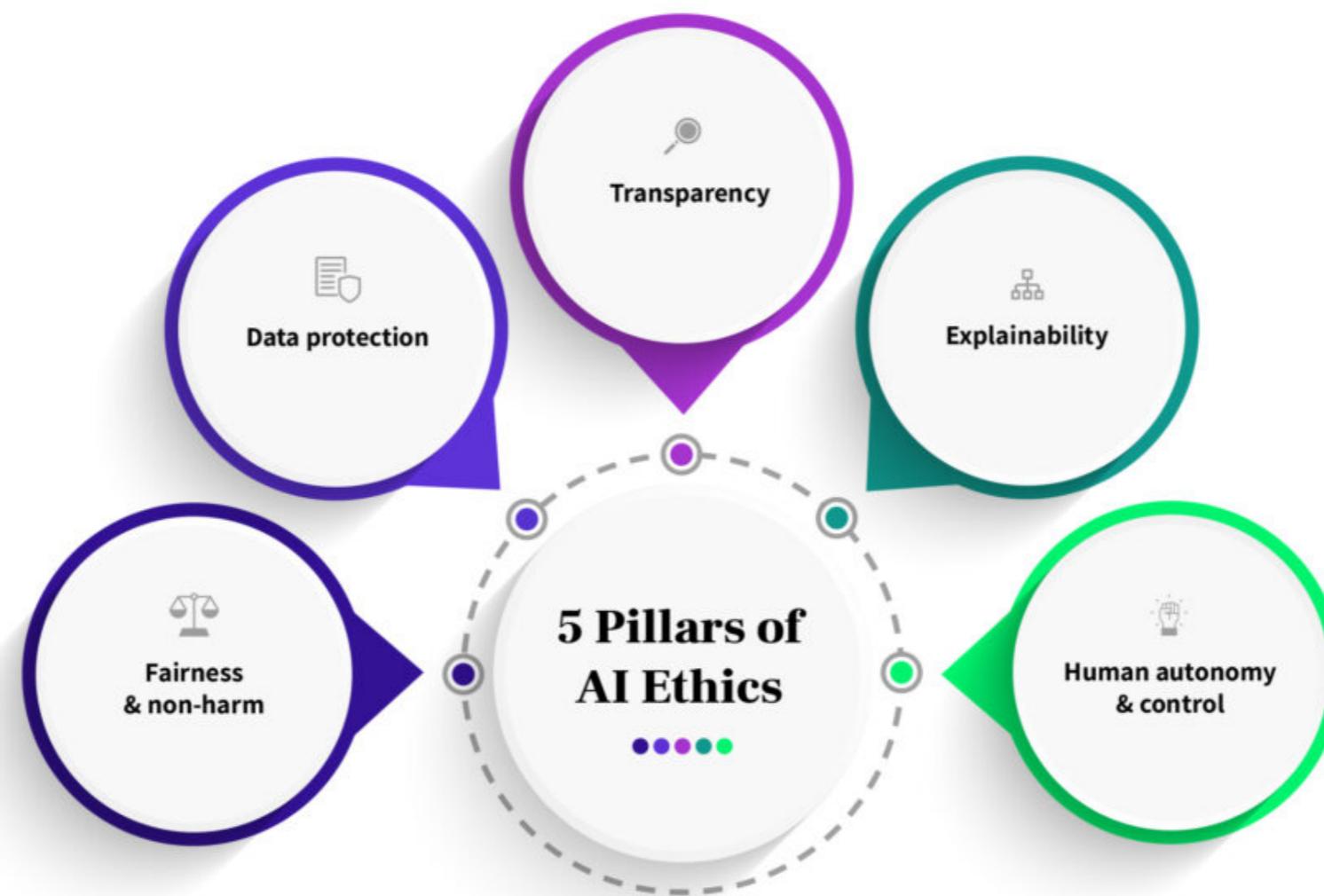
Make sure you understand the code

# Quality process ?



# Skill Required

Knowledge of ethical AI principles, legal and regulatory compliance, stakeholder management



# **Thank you**