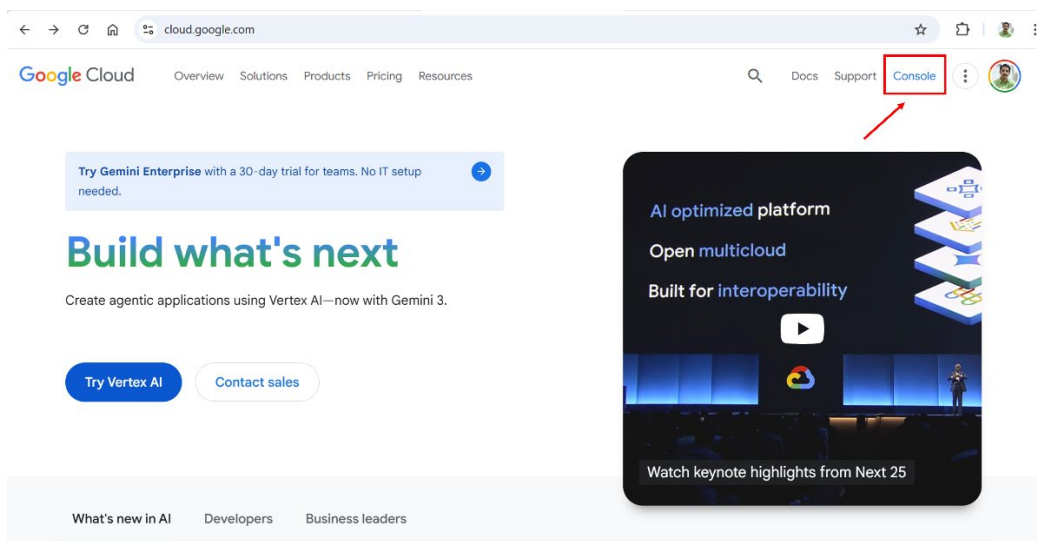


# CLOUD COMPUTING LABORATORY

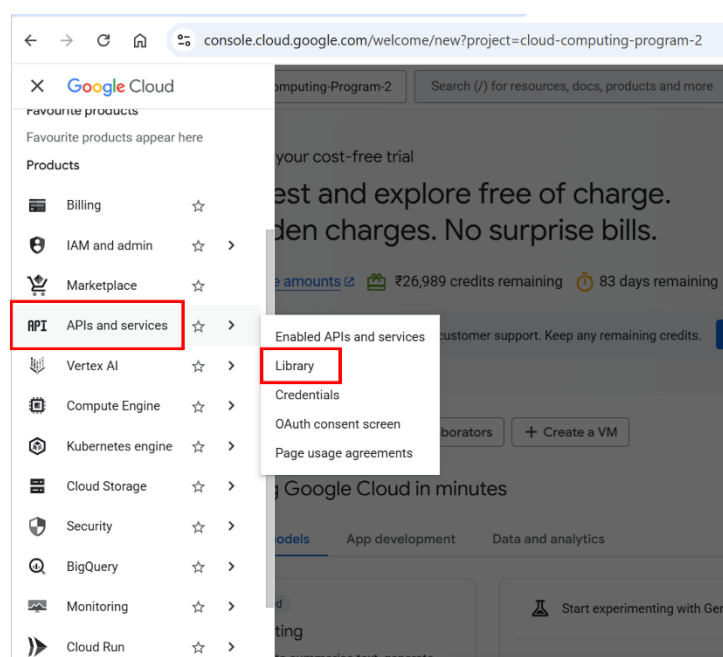
## Experiment – 3

*Create and deploy a Cloud Function to automate a specific task based on a Cloud Storage event.*

**Step 1:** From the Google Cloud homepage, click on **Console** to open the Google Cloud Console.



**Step 2:** Navigate & select **APIs and services** from the Navigation menu, then select **Library** to open the API Library.



**Step 3:** In the API Library search bar, type **cloud build api** and select **Cloud Build API** from the results.

- Click **Enable** to enable the Cloud Build API for the selected project.

The screenshot shows the Google Cloud API Library search results for 'cloud build api'. The search bar is highlighted with a red box. The results list includes:

- Cloud Build API** (Google Enterprise API) - 15 results. A red arrow points to this result. Description: Cloud Build, Google Cloud's continuous integration (CI) and continuous delivery (CD) platform, lets you build software quickly across all languages. Get complete control over defining custom workflows for building, testing, and deploying across multiple environments such as VMs, serverless, Kubernetes, or Firebase.
- Ad Exchange Buyer API II** (Google) - (1) result. Description: Efficiently and creatively manage your large Ad Exchange accounts and campaigns, and maximize return on investment (ROI) across millions of seller sites.
- Cloud Location Finder API** (Google) - (3) results. Description: Cloud Location Finder is a source of truth for cloud regions and zones across Google Cloud, Amazon Web Services (AWS), Azure,

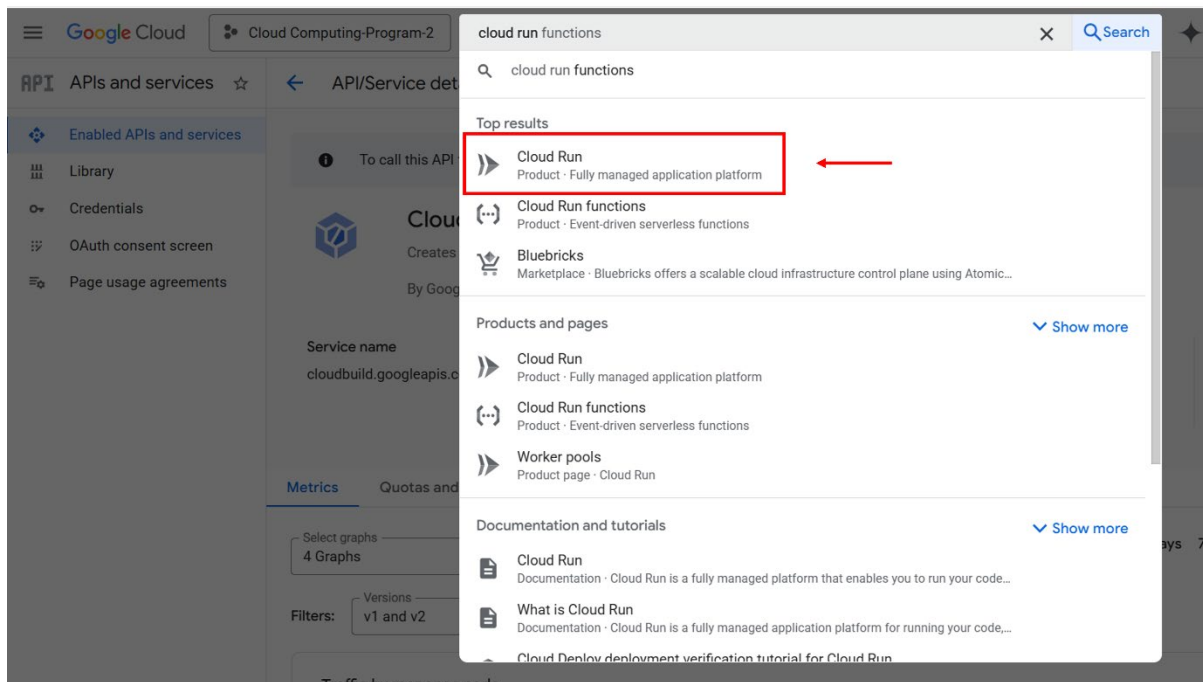
**Step 4:** This is the API details page where the service is confirmed as **enabled** for the project.

The screenshot shows the Google Cloud API details page for the Cloud Build API. The page is titled 'API/Service details' and includes a 'Disable API' button. The main content area displays the following information:

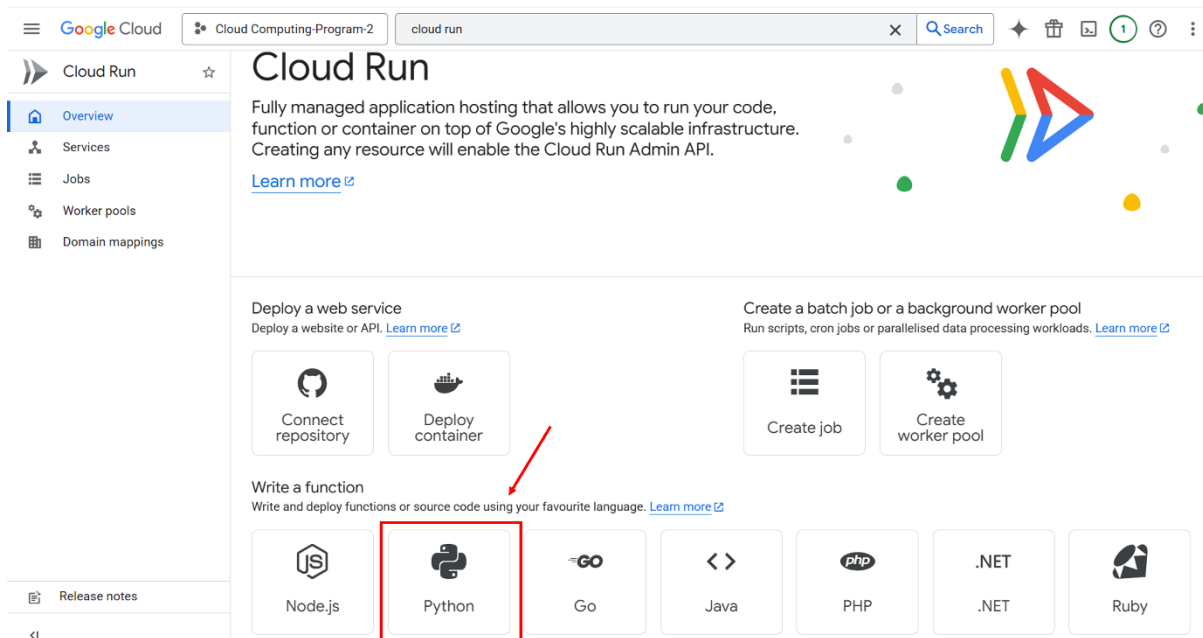
- Cloud Build API** (Google Enterprise API)
- Service name:** cloudbuild.googleapis.com
- Type:** Public API
- Status:** Enabled
- Documentation:** Quickstart, Documentation
- Explore:** Try in API Explorer

The page also includes a 'Metrics' section with a graph showing traffic by response code. The graph is currently empty, and the filters are set to 'v1 and v2' versions, 'Unspecified, Anonymou...' credentials, and '68 options selected' methods.

**Step 5:** In the search bar, type **cloud run** and navigate & select **Cloud Run** from the results.



**Step 6:** From the Cloud Run overview page, under **Write a function**, select **Python** as the runtime (*or any other language of your choice*).



**Step 7:** Enter the **service name**, choose the **region**, keep the runtime as **Python**, allow **public access**, and select **request-based billing**, then click **Create**.

*(Note: public access or Require authentication based on the application requirement and access decision.)*

The screenshot shows the 'Create service' configuration page in Google Cloud. The 'Service name' is 'pydeploy', the 'Region' is 'europe-west1 (Belgium)', and the 'Runtime' is 'Python 3.14'. Under 'Authentication', 'Allow public access' is selected. Under 'Billing', 'Request-based' is selected. The 'Create' button is highlighted with a red box and an arrow.

**Step 8:** Wait until the service creation, revision creation, and traffic routing show **Completed** status.

- Modify the response message in the source code if required and click **Save and redeploy** to update the function.

The screenshot shows the 'Service details' page for 'pydeploy1'. The status is 'Completed' for 'Creating service', 'Creating revision', and 'Routing traffic'. The 'Source' tab is active, showing a code editor with Python code. The 'Save and redeploy' button is highlighted with a red box and an arrow.

```

1 import functions_framework
2
3 @functions_framework.http
4 def hello_http(request):
5     """HTTP Cloud Function.
6
7     Args:
8         request (flask.Request): The request object.
9         <https://flask.palletsprojects.com/en/1.1.x/api/#incoming-request-data>
10
11     Returns:
12         The response text, or any set of values that can be turned into a
13         Response object using 'make_response'
14         <https://flask.palletsprojects.com/en/1.1.x/api/#flask.make_response>.
15     """
16     request_json = request.get_json(silent=True)
17     request_args = request.args
18
19     if request_json and 'name' in request_json:
20         name = request_json['name']
21     elif request_args and 'name' in request_args:
22         name = request_args['name']
23     else:
24         name = 'Welcome to Cloud Computing Laboratory'
25     return 'Hello {}'.format(name)
  
```

**Step 9:** After deployment, click the generated **service URL** to test the Cloud Function output in the browser.

The screenshot shows the Google Cloud Platform console for a Cloud Run service named 'pydeploy1'. The 'Service details' page displays the deployment status as 'Deploying revision' with a 'Hide status' link. Below this, a progress bar shows four steps: 'Building source (see logs)', 'Updating service', 'Creating revision', and 'Routing traffic', all marked as 'Completed'. A red arrow labeled 'Click' points to the service URL: <https://pydeploy1-568802571805.us-central1.run.app>. The console also shows the source code for the function, which is a simple HTTP handler returning a welcome message.

**Output in browser:**



Hello Welcome to Cloud Computing Laboratory!

  
*Successful deployment*

**Step 10:** To remove the function, navigate & select **Cloud Run** → **Services**, select the service, and click **Delete**.

Google Cloud Cloud Computing-Program-2 cloud run Search

Cloud Run 2 services selected Copy Delete Tags Labels Permission

Overview Services Jobs Worker pools Domain mappings

A service exposes a unique endpoint and automatically scales the underlying infrastructure to handle incoming requests. Deploy a container image, source code or a function to create a service.

Filter Filter services

<input checked="" type="checkbox"/>	<input type="checkbox"/>	Name ↑	Deployment type	Req/sec ?	Region	Authentication ?
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	pydeploy	(~) Function	0	us-central1	Public access
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	pydeploy1	(~) Function	0	us-central1	Public access

Deleting a Cloud Function from Cloud Run services

\*\*\*\*\*