

# Developing applications using Google App Engine Flexible Environment

## Deploying a test application - Google App Engine Flexible Environment

Read “About the Flexible Environment”

(<https://cloud.google.com/appengine/docs/flexible>) section. Choose one of the supported languages and follow the quickstart guide:

- Python, <https://cloud.google.com/appengine/docs/flexible/python/quickstart>
- Java, <https://cloud.google.com/appengine/docs/flexible/java/quickstart>
- Node.js, <https://cloud.google.com/appengine/docs/flexible/nodejs/quickstart>
- PHP, <https://cloud.google.com/appengine/docs/flexible/php/>
- Go, <https://cloud.google.com/appengine/docs/flexible/go/quickstart>
- .NET, <https://cloud.google.com/appengine/docs/flexible/dotnet/quickstart>
- Ruby, <https://cloud.google.com/appengine/docs/flexible/ruby/quickstart>

Execute the steps from the given tutorials using the previously created Google Cloud account. In case you are prompted for any incurring charges, let the laboratory assistant know.

## Using the Google Cloud Datastore Service

Read the information from here to learn what Cloud Datastore is and what you can use it for: <https://cloud.google.com/datastore/docs/concepts/overview>

Now use the Cloud Datastore service by completing the following tutorial: <https://www.qwiklabs.com/focuses/941?parent=catalog>

## Using Google Cloud Functions

Read the information from here to learn what Cloud Functions are and how you can use them: <https://cloud.google.com/functions/docs/concepts/overview>

Now play with Cloud Functions by completing the following tutorial: <https://www.qwiklabs.com/focuses/1763?parent=catalog>

## Deploying a Python Flask Web Application to App Engine Flexible

<https://www.qwiklabs.com/focuses/3339?parent=catalog>

This tutorial uses the Cloud Storage Bucket. See more information about it here:

[https://cloud.google.com/storage/docs/json\\_api/v1/buckets](https://cloud.google.com/storage/docs/json_api/v1/buckets)

### Homework 3 (due in seventh week)

Create an application that uses the Google Cloud ecosystem.

**Requirements** - the application is using at least three Google Cloud services (one is stateful) and is located in *appspot.com* domain.

#### **Additional Information:**

- You are allowed to use frameworks for this homework;
- This homework is presented in teams of 2-4 students;
- The application made for this homework can be a part of the final project implementation (even better for you! : ) );
- The number of used services will be scaled according to the number of team members (2 extra cloud services/APIs for each member); ex: 5 services for 2 students, 7 services for 3 students, 9 services for 4 students;
- Only 1 out of the 3 required Google Cloud Services can be substituted by the usage of a Google Cloud API; this requirement also scales to the number of team members (1 out of 3, 2 out of 5, 3 out of 7, 4 out of 9);

#### **General observations:**

- You should be able to motivate the choice to use those services instead of others for your application;
- The base code for the used services can be implemented in any programming language;
- Teams of 2-4 people will be formed during laboratory and will be kept for the following homeworks and the final project;
- The degree of complexity of the used services and APIs will also constitute a mean of evaluation in the final homework grade.