**Module Hands-on Lab**

Today’s lab, in line with module’s coursework, is composed by two core components.

Namely, Streamlit introduction and app deployment on cloud infrastructures. The latter being Heroku and Google Cloud Platform (GCP).

**1)** [**Streamlit**](https://streamlit.io/) **app**

Install Streamlit within your environment:

* pip install streamlit==1.12.2

Play around with Streamlit’s API (it’s a pip-install away) and specifically:

* Create a multi-page app, to grasp the following concepts:
  + App folder name
  + Apps naming and ordering
  + Emoji inclusion
* Play around with input widgets (<https://docs.streamlit.io/library/api-reference/widgets>)

**Quick links:**

* [**Streamlit API Documentation**](https://docs.streamlit.io/library/api-reference)
* [**Multipage Streamlit Apps**](https://blog.streamlit.io/introducing-multipage-apps/)
* [**I tried to build a Python Machine Learning Streamlit App in 7 Minutes | Coding Challenge**](https://youtu.be/Ebb4gUI2IpQ)

**2)** [**Heroku**](https://www.heroku.com/) **/** [**GCP**](https://cloud.google.com/gcp/?hl=it&utm_source=google&utm_medium=cpc&utm_campaign=emea-it-all-it-bkws-all-all-trial-e-gcp-1011340&utm_content=text-ad-none-any-DEV_c-CRE_527980088521-ADGP_Hybrid%20%7C%20BKWS%20-%20EXA%20%7C%20Txt%20~%20GCP%20~%20General%23v3-KWID_43700060384861759-kwd-87853815-userloc_1008463&utm_term=KW_gcp-NET_g-PLAC_&gclid=EAIaIQobChMIm-bHuoaZ-gIVlo9oCR3SoATREAAYASAAEgIJQvD_BwE&gclsrc=aw.ds) **deployment**

**Preliminary:**

1. Share your Streamlit app repository on GitHub
2. Create a free account on Heroku and GCP

**Heroku (**[**https://uni-pd-lab-session.herokuapp.com/**](https://uni-pd-lab-session.herokuapp.com/)**)**

1. Create the following files:
   1. **requirements.txt**
   2. **setup.sh**  
      *mkdir -p ~/.streamlit/*

*echo "[server]" >> ~/.streamlit/config.toml*

*echo "headless = true" >> ~/.streamlit/config.toml*

*echo "port = $PORT" >> ~/.streamlit/config.toml*

*echo "enableCORS = false" >> ~/.streamlit/config.toml*

*echo "[global]" >> ~/.streamlit/config.toml*

*echo "developmentMode = false" >> ~/.streamlit/config.toml*

* 1. **Procfile***web: sh setup.sh && streamlit run name\_of\_your\_main\_app\_script.py*

**Google Cloud Platform:**

1. Create a GCP project
2. Create a procfile, as above
3. Head to “Cloud Run” section from GCP’s account menu
4. Create service
5. Continuously deploy from source repo (GitHub)  
   Immagine che contiene testo

   Descrizione generata automaticamente
6. Click on “Set up with cloud build” and allow access through the dedicated setup page  
   Immagine che contiene testo

   Descrizione generata automaticamente
7. Select your repository name and click on the “next” button  
   Immagine che contiene testo

   Descrizione generata automaticamente
8. Build Type must be Python through build packs  
   Immagine che contiene testo

   Descrizione generata automaticamente
9. Allow unauthenticated invocations  
   Immagine che contiene testo

   Descrizione generata automaticamente
10. Click on deploy

**Quick links:**

* [**Point-and-click continuous deployment with Cloud Run**](https://www.youtube.com/watch?v=Nf3KAY-i6zw&t=497s)