HEROKU

WEEK 12 – 11/13/2019

ANNOUNCEMENTS

- This week's lab is the last one for this semester.
- It is a short lab so please finish it within the lab hours. You could use the remaining time to work on your project.
- It is due on November 22 at 11:59 pm
- Project Milestone 5 has been published:
  - https://sreeshanath.github.io/Project%20Milestones/Project%20MIlestone%205/index.html
  - Due date has been moved to December 2, 11:59 pm

GOOD NEWS!

- You get to recover 50% credit on any two labs if you turn in completed work.
- You could've gotten a 0 for whatever reason, this is your chance to get back half the points.
- There will be an item on Canvas called 'Past lab submissions'. Instructions will be included there.
- Expectations for submission:
  - Create one zip file containing one/both the lab exercises and upload that zip file to Canvas. Be sure to number the folders in the zip file to indicate which lab the work belongs to.
  - It is due on Dec 6 at 11:59 pm

MIDTERM DETAILS

- **When:** November 20, 7pm – 8pm
- **Where:**

Last Names begin with	Room
A - De	HUMN 250
Do – Hu	HUMN 150
I - L	HLMS 201
M - P	HLMS 199
Q - S	DUAN G130
T - Z	BESC 180

- **Topics:** SQL, NodeJS, CI/CD, Documentation, Web Services, Ethics, Software Law, Cloud Computing, Heroku
- Sample Midterm will be live tomorrow
- Monday – Review Lecture
- If you need accommodations, please inform your TA latest by Friday.

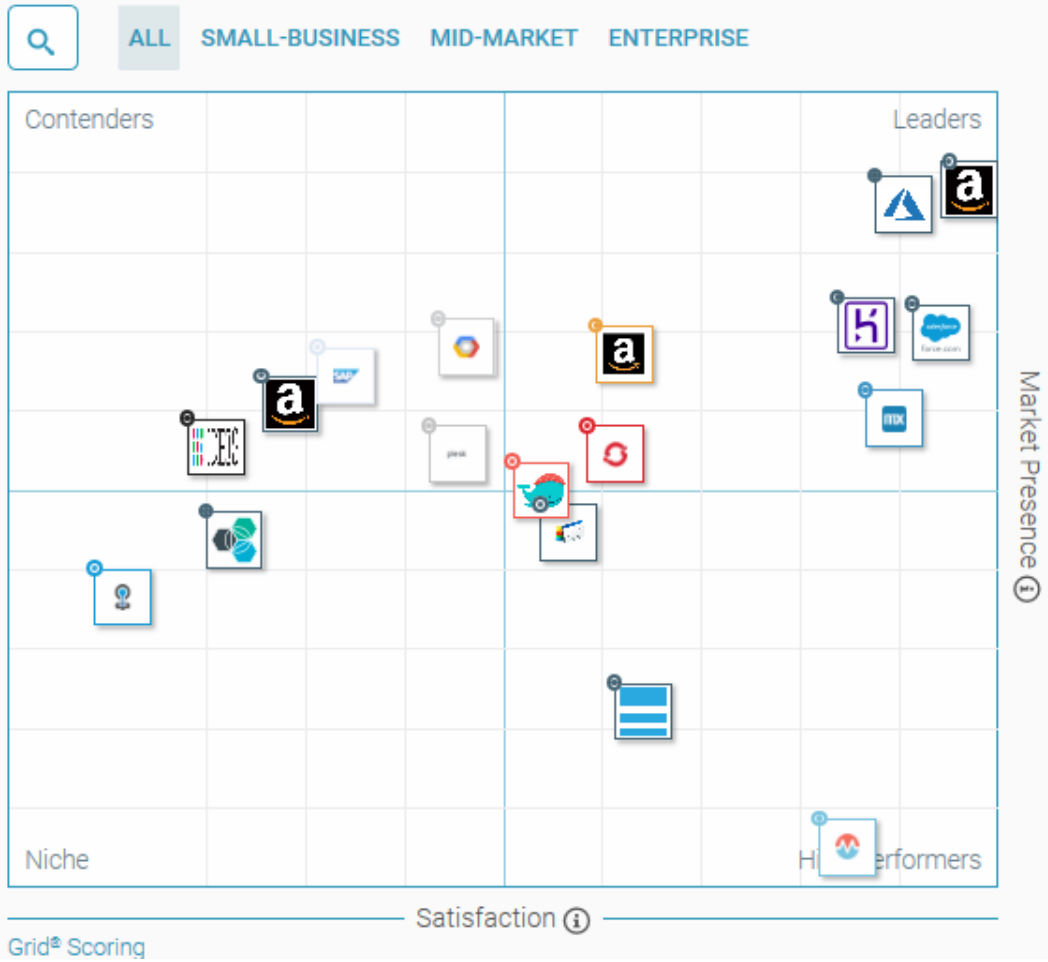
MIDTERM POINTERS

- Please make sure you carry your buff card/valid photo Id with you to the exam.
- Your midterm quiz will contain roughly 25 questions.
- Question patterns would be similar to Midterm 1
- You wouldn't be writing any SQL queries in this one
- Focus on the materials provided by us (lecture slides, labs and homework)
- Open notes, No internet except for the quiz
- During the exam:
  - If you have any questions about the questions on the quiz, **ASK THE PROCTOR!**
  - Your computer/internet isn't working? **INFORM THE PROCTOR IMMEDIATELY!**
  - Do not get lost looking for answers in lengthy pdfs
  - If you don't know the answer to a question please move on to the next one
  - Keep an eye on the timer

HEROKU

- One of the first PaaS providers out there (June 2007)
- Initially focused on Ruby
- Purchased by SalesForce in December 2010
- Free on a small scale (great for students)
- Many competitors — AWS, GoogleSites, Azure, OpenShift, DigitalOcean

G2 Crowd Grid® for **Cloud Platform as a Service (PaaS)**



HEROKU


Everything you need to build, run, and scale customer apps
Dynos
Run virtually any language at scale
Database
Enterprise grade PostgreSQL as a Service
Add-ons
Marketplace for data stores and app services

TERMS TO KNOW

Slug - The build system takes the application, its dependencies, and the language runtime and produces a "slug." A slug contains everything needed to run the app, except for the operating system. https://devcenter.heroku.com/articles/slug-compiler

Dyno – Dynos are isolated, virtualized Linux containers that are designed to execute code based on a user-specified command. https://www.heroku.com/dynos

Procfile – Heroku apps include a **Procfile** that specifies the commands that are executed by the app on startup. https://devcenter.heroku.com/articles/procfile

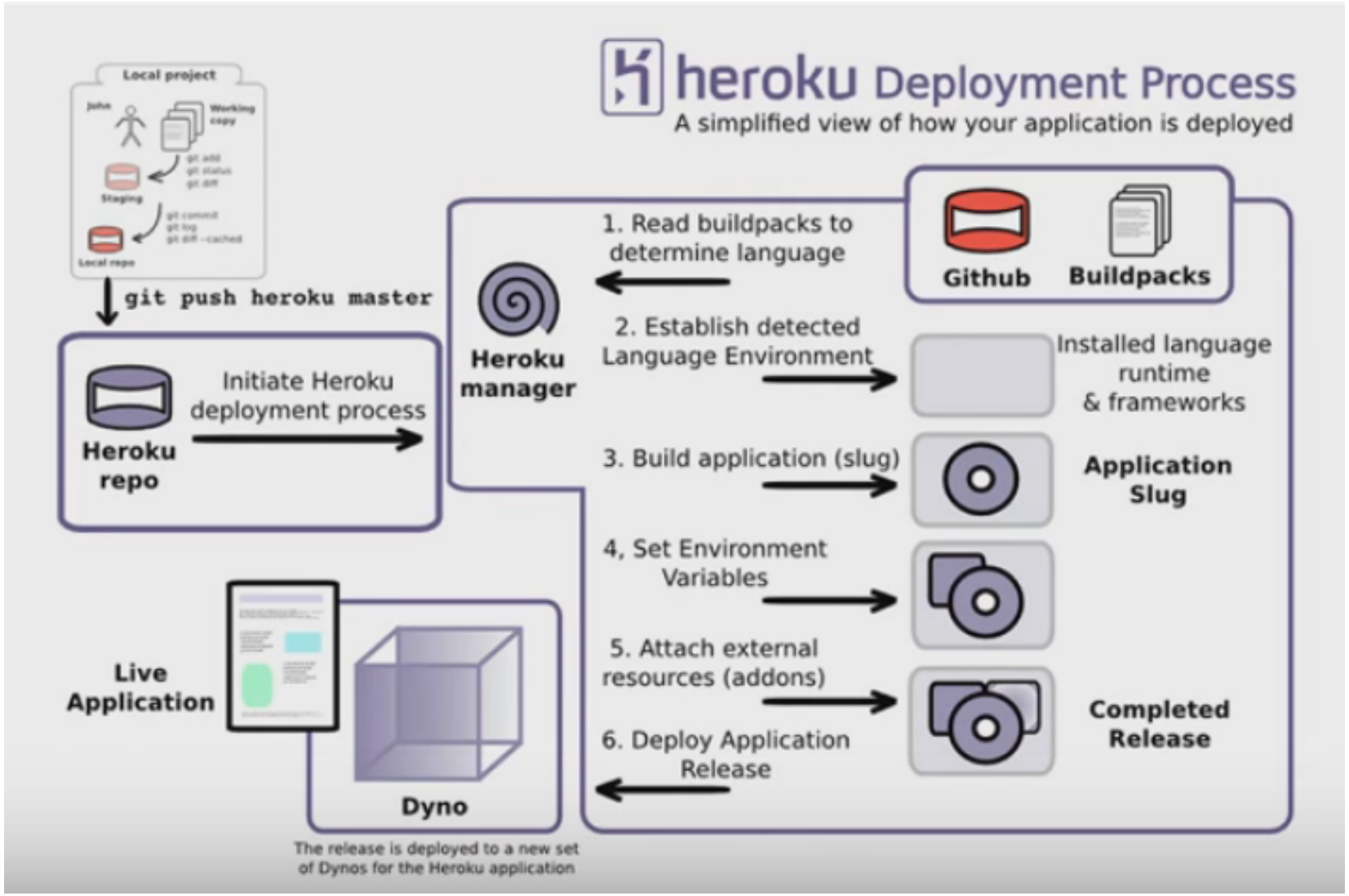
Dyno Manager - The dyno manager keeps dynos running automatically; so operating your app is generally hands-off and maintenance free. https://devcenter.heroku.com/articles/dynos

HEROKU

- Provides users with one or more DYNOs
- Provides Standard PostgreSQL database engine
- Allows “add-on’s” https://elements.heroku.com/addons
  - Load testing
  - Email sending
  - Continuous Integration and Delivery
  - Alternate DB (MySQL, Mongo or Redis)
- Core support for Ruby, Python, NodeJS, Java, PhP
- Tightly integrated with git for version control

HEROKU

- Write your app in any supported language
- Ready to deploy, push to heroku git master
- Heroku Manager
  - Packages your app into an executable bundle
  - Contains all components needed to run your app
  - Slug is executable on the DYNO
  - Compiled through a “buildpack” and “slug compiler”
  - Every change is a “new release” – easy to roll back


heroku Deployment Process
A simplified view of how your application is deployed
Local project
John
Working copy
git add
git status
git diff
Staging
git commit
git log
git diff --cached
Local repo
git push heroku master
Heroku repo
Initiate Heroku deployment process
Heroku manager
1. Read buildpacks to determine language
Github
Buildpacks
2. Establish detected Language Environment
Installed language runtime & frameworks
3. Build application (slug)
Application Slug
4, Set Environment Variables
5. Attach external resources (addons)
6. Deploy Application Release
Completed Release
Live Application
Dyno
The release is deployed to a new set of Dynos for the Heroku application

HEROKU

- Learn More At :
  - https://devcenter.heroku.com/categories/reference

HEROKU

- Follow this tutorial:

  https://devcenter.heroku.com/articles/getting-started-with-nodejs#introduction

- This will walk you through
  - Downloading and installing correct versions of Heroku CLI, git, node, npm
  - Setting up your own account at Heroku
  - Clone a "demo" app from Heroku's website
  - Deploy the "demo" app cloned from Heroku
  - Provision a PostgreSQL database