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CIS515 - Allison

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Homework 2

Project **Cloud Computing for Software Development** Requirements Document

Team Members

- Tyler Elton, **Role:** *all*

Project Overview

This project is designed to give an overview of the common cloud services utilized by software developers during development. Covers automated testing through version control software, automatic styling for uniform code formatting, automatic deployments (CI/CD) to development and production servers, as well as notifications for all of these. Will also go through some of the various cloud services that I utilize for searching, image & video storage/manipulation, as well as authentication and real-time databases.

System Requirements

Hardware:

- 2 servers running the latest LTS Ubuntu version (both with at least 2GB RAM each)
  - 1 for a development/test server
  - 1 for the production/live server

Cloud Services:

- Travis CI: *CI/CD platform*
- Style CI: *unified code formatting service*
- Algolia: *full-text searching*
- Cloudinary: *image/video storage & manipulation platform*
- Firebase: *authentication/real-time database*

Glossary of Terms

- **SPA:** *Single page application*. A web app that manipulates a virtual DOM to refresh the page instead of loading entirely new pages from the server. Ex: Twitter.
- **CI:** Continuous integration. A practice that requires small modifications to the code base and to check in these changes to a version control software (ex: git).
- **CD:** Continuous delivery. Automates the delivery of the software to the required infrastructure. Employs automatic testing and deployments to ensure software is correct.
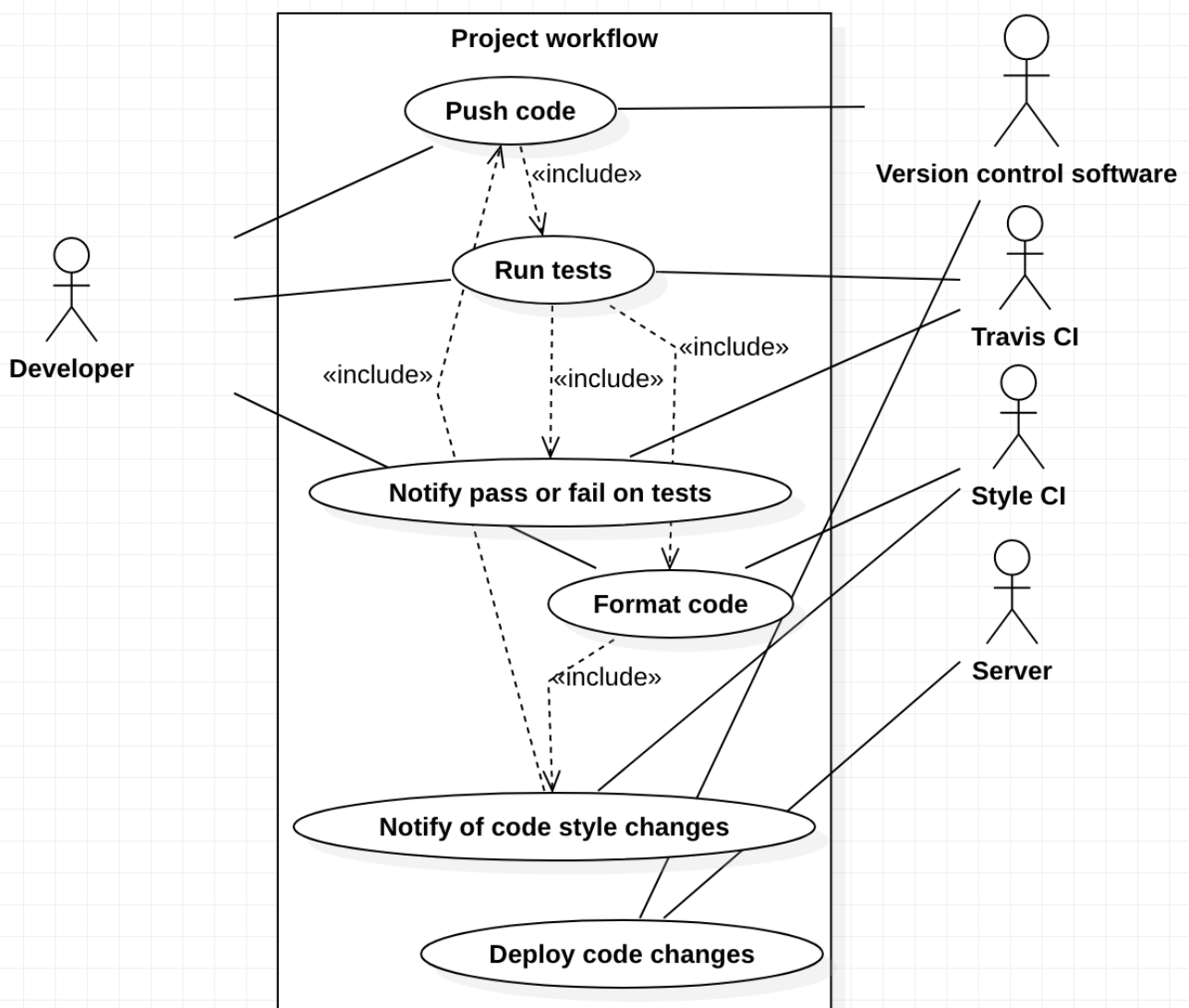
- **CI/CD:** The act of practicing CI in tandem with CD to ensure the software meets the specified requirements.
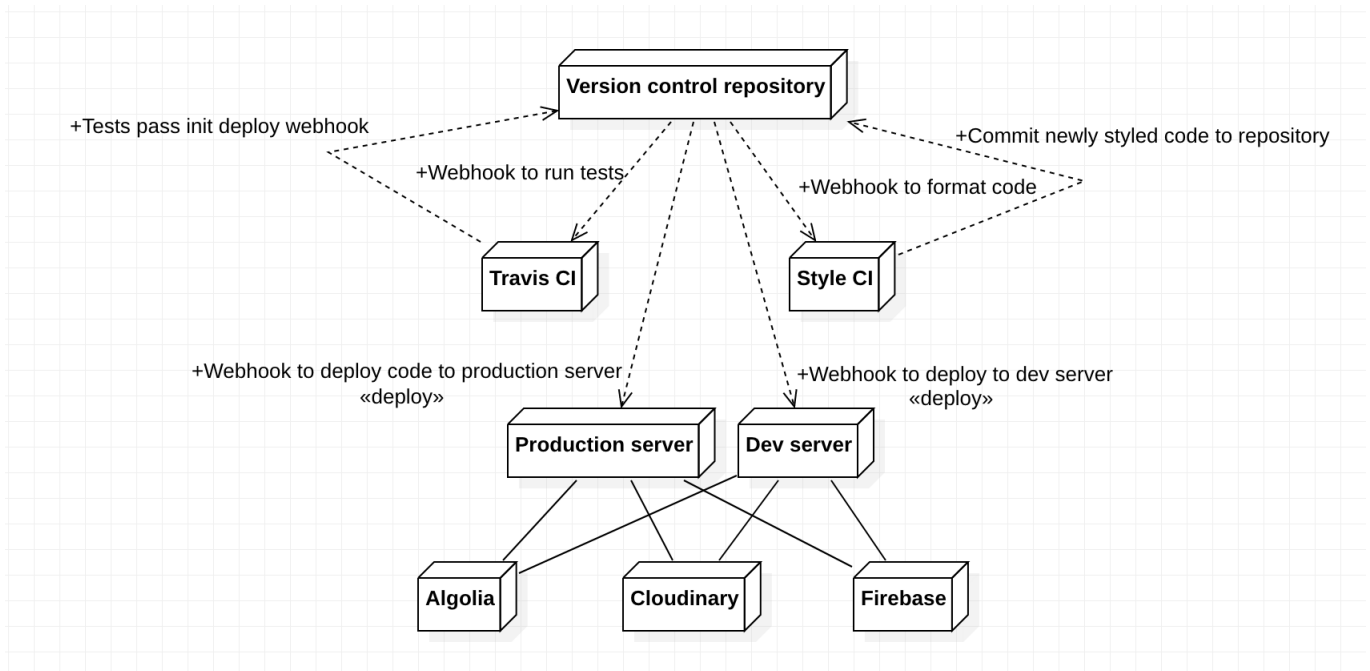
Note: This is not an all-inclusive list of terms. More will be added when necessary.

Assumptions and Constraints

- **Budget:** Every cloud service is utilized using the *free* tier for any applicable pricing tiers.
- **Scheduling:** The project should not exceed the "end of November" deadline.
- **Scope:** The application being written for the project needs to be small in scale in order to adhere to the schedule.

Use Cases (software development) and Configuration Diagram (system configuration)

Specific Requirements (Scope)

- **User requirements**
  - The application should be able to withstand any number of concurrently logged in users.
- **Reporting requirements**
  - The CI/CD service should automatically report successes/failures to e-mail, as well as Slack.
- **Access/Security requirements**
  - The data that is stored in the application should not leak out passwords or other sensitive data.
  - The servers that host the application should be secure, utilizing SSL on all network traffic.
- **Interface requirements (user and/or system, usability,etc.)**
  - The application should be usable on any device (phone, tablet, laptop, etc.).
- **Support/Maintenance requirements**
  - The project will be checked into a version control software and a remote VCS repository.
- **Integration requirements**
  - The CI/CD service will seamlessly integrate any new changes to the *develop* or *master* branches to the appropriate servers.