

Status Report: UBCO MDS Capstone - Urban Data Labs

WEEK 1

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Outline

- About the Team
- About the Client
- Details of Project
 - Proposal
 - Research questions
 - Statement of work
- Workflow and Planning Process
 - How the team is going to operate and manage tasks for the duration of the project
- Review of previous week
 - Tasks Performed and Time log summaries
- Plan for upcoming week



Urban Data Labs (UDL) Capstone MDS Team member Introduction

- Connor Lee
- Claudia Nikel
- Eva Nguyen
- Alex Tamm



Urban Data Labs (UDL) Capstone Client Overview



Contacts are:

- Jiachen Wei (MDS alum)
- Mike Kennedy, Ph.D

Purpose

- Formed in September 2019 to advance the data access, data management, and data analytics capabilities on campus to address campus-wide sustainability challenges

UDL Objectives

- Provide open access of UBC sustainability data to researchers, policy makers, and operational staff
- Support monitoring and measurement of sustainability performance for buildings, transportation, and biodiversity specifically as it relates to the policy commitments of UBC Sustainability Initiative (USI) and Campus and Community Planning (C&CP)



Details of the Project





Overview

Research Question

- Based on a building's sensor data, how can the data be grouped automatically into NRCan secondary end use classifications?

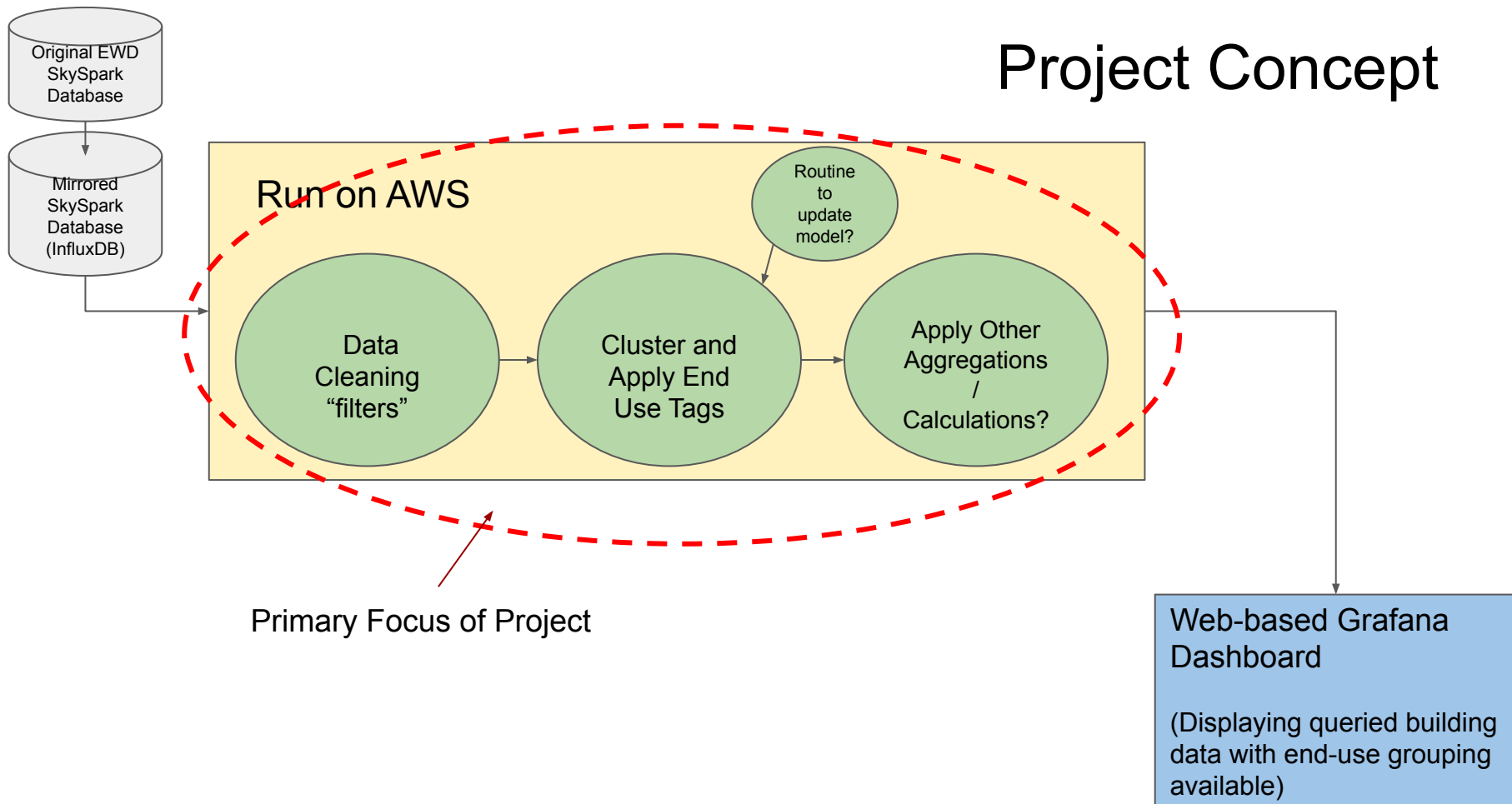
Proposal

- Create a program that queries live streaming sensor data from the UDL SkySpark database, cleans and uses appropriate ML methods to apply NRCan Secondary End-Use Classifications to the data, and then passes the results to a Grafana visualization dashboard with a few simple example visualizations.

Statement of Work

- In order to develop a viable end-use classification product the following steps need to be completed:
 1. Data Collection and Cleaning
 2. Feature Selection and Engineering
 3. End-Use Classification
 4. Visualization

Project Concept





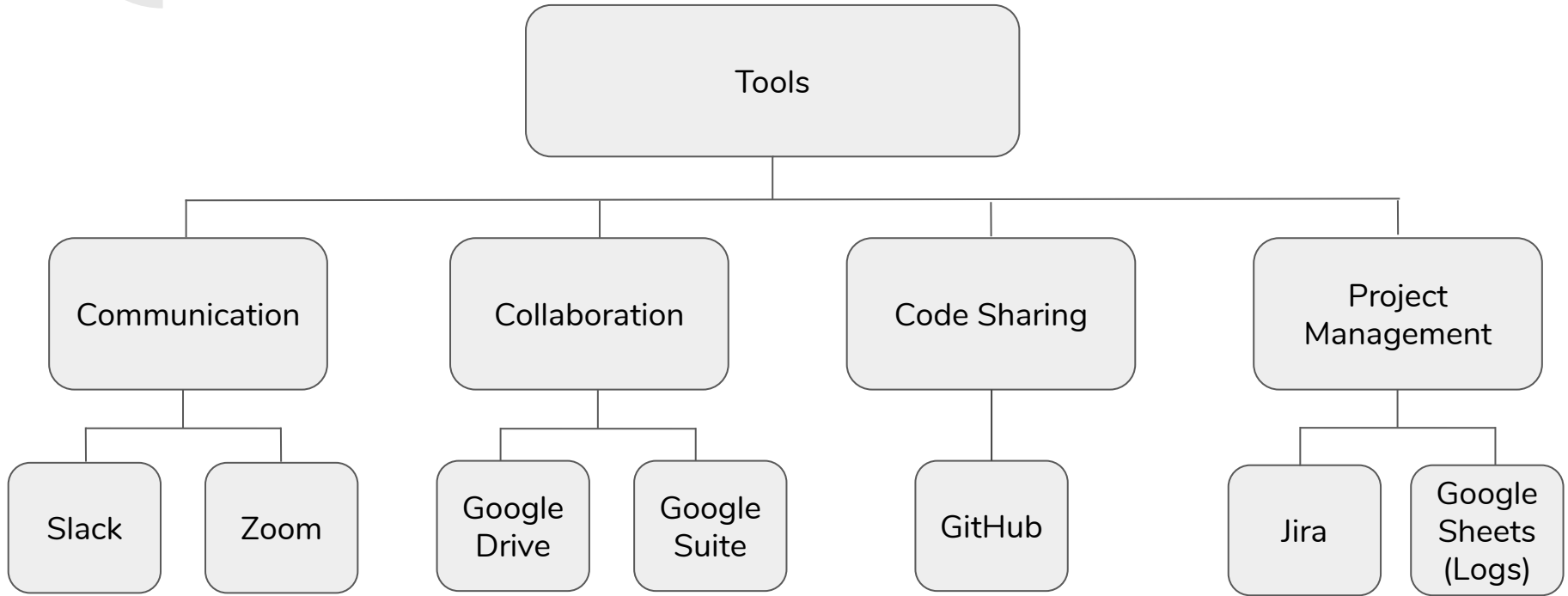
Workflow Process



Weekly Meeting Schedule

| | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY |
|----------|------------------------|----------------------------|----------------|-----------------------|--|
| 10:00 AM | Daily Stand Up | Daily Stand Up | Daily Stand Up | Daily Stand Up | Daily Stand Up |
| 11:00 AM | Meeting prep for Scott | Meeting with Scott (12:20) | | Retrospective Meeting | Sprint Planning & Meeting Prep |
| 12:00 PM | | | | | |
| 1:00 PM | | | | | |
| 2:00 PM | | | | | Meeting with UDL |
| 3:00 PM | | | | | |
| 4:00 PM | | | | | Post UDL meeting & update kanban board |
| 5:00 PM | | | | | |
| 6:00 PM | | | | | |

Workflow & Planning Process





Previous Week's Progress





Progress - Individual Work Logs

Connor

Researched problem solutions and different ML techniques + manual data download + EDA + proposal draft

Claudia

Created sprint planning documents + reviewed problem solutions and ML techniques + EDA + proposal draft

Alex

Researched equipment tags + presentation template + data flow chart + EDA + proposal draft

Eva

Organized sprint and meeting schedules + corresponded with UDL on recurring meetings + EDA + proposal draft



Progress - Team Work Logs

Accomplishments

- Finalized most of our workflow processes by setting up tools, creating meeting templates, and developing weekly meeting schedule
- Started our first sprint and updates in Jira
- Had a successful meeting with the client to clarify project objectives
- Explored client's data and researched relevant machine learning solutions
- Started working on the project proposal



Tasks for the Next Weekly Cycle

1. Submit proposal draft to UDL on May 4th
2. Finalize proposal draft and submit on GitHub
3. Exploratory Data Analysis and understanding data dictionaries
4. Meet with UDL about setting up Databricks to stream data
5. Select relevant features