Project Plan
Group Project Organization and Scheduling

The Capstone Experience

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Functional Specifications

• All students work on group projects at Michigan State
  ▪ Frustration around communicating with members, scheduling times to meet, keeping track of used resources, etc.

• Web application designed to centralize scheduling and any services used to work on the project
  ▪ Create and maintain multiple groups

• Scheduling feature finds the best time for all group members to meet
  ▪ Pair your calendar applications (Google Calendar or Office 365)
  ▪ Scheduler grabs all blank times from all members’ calendars and suggest multiple times which most/many members can meet
  ▪ Users select their preferred meeting time, which is added to the group calendar

• Quick access to collaboration tools
  ▪ Instantly create connections to services that handle messaging, documents, etc.
  ▪ Suggestions about possible services the group may find useful for their project
Design Specifications

• Website elements:
  ▪ User Portal
    o Managing Groups: create/view groups
    o List of all scheduled meetings
  ▪ Team Portal
    o Meeting Scheduler: time table to schedule new meetings
    o Collaboration Tools

• UI Components
  ▪ Perceivable: UI components simple and perceivable
  ▪ Operable: help users navigate content easily
  ▪ Understandable: media and text content easy to understand
Screen Mockup: Personal Portal

Welcome
Username

Scheduled Meetings
- 1/29 (MSU ITS):
  3:00pm-4:30pm
- 2/5 (CSE 477 Project):
  4:00pm-6:00pm
- 2/8 (MSU ITS):
  3:00pm-4:00pm

My groups
- MSU ITS
- CSE 477 Group Project
Screen Mockup: Group Creation
Screen Mockup: Team Portal
Screen Mockup: Team Scheduler
Technical Specifications

• Serverless Framework
  ▪ Python 3.7 Runtime
  ▪ Amazon API Gateway
  ▪ Lambda
  ▪ DynamoDB
  ▪ Amazon SES
  ▪ Cognito User Control

• Vue.js / Bootstrap

• Integration with 3rd Party APIs via OAuth
System Architecture

AWS

Front End
- S3 Bucket
- Vue.js
- Bootstrap

Serverless Framework
- API Gateway
- DynamoDB
- Lambda
- SES
- Cognito

Third Party Services
- Google Calendar
- Office 365
- 3rd Party APIs

USER
System Components

• **Software Platforms / Technologies**
  - Front-end: Bootstrap and Vue.js
  - Back-end: AWS Serverless Infrastructure
    - Lambda, DynamoDB, Cognito user control, SES
  - API Gateway and OAuth – Integration with numerous 3rd Party APIs
  - GitLab – Version Control and hosting code for web application
Risks

• Integrating with 3rd Party APIs
  ▪ Utilizing many 3rd party API services and must ensure consistent usability
  ▪ Great DevOps, maintain validation by automating local tests and generalizing implementation to support future updates to the APIs

• Security Concerns Storing User Information
  ▪ System will store as little user information as possible to avoid security liability
  ▪ Only store login information, delegate other info to authentication APIs

• Support Multiple Calendars
  ▪ Ability to interpret multiple calendars for availability i.e., Google Personal Calendar and Outlook Work Calendar
  ▪ Identify the most common use case and stick to a well defined and well documented approach

• Consistent User Experience for Non-MSU Students
  ▪ Avoid confining users to MSU students
  ▪ Design from the beginning for the general user with a .edu email
Questions?