**Reflection on the software engineering process**

**Overall process**

* Description of the process
  + We brainstormed a variety of ideas and decided upon an app for meeting people that suggests a location. The team created user stories and personas to get a better idea of the requirements need for this app. A product backlog was created for the user stories. We then decided between us which aspects we would individually work on and what would suit our needs and abilities as developers best. Each Sprint completed a number of user stories and any leftover stories were added to the next sprint.
* List of all the tools per activity – requirements, design, communication, project management etc.
  + Requirements: Google Docs, Google Sheets
  + Communication: Slack, SMS, Trello
  + Architecture: Firebase, Google API, Yelp API
  + Design: Android Studio, Photoshop
* What worked well?
  + What worked well was that everyone knew exactly what their job was and there was no confusion about what everyone needed to do.
* What did not work well?
  + We sometimes had some communication issues, primarily at the start of the project.
* What could be improved?
  + We could better manage task and make sure that development work was split up better.
* How does the process you follow permits to improve the quality of the product you delivered? Would it have been possible to achieve what you achieved without process?
  + Everyone knew what they had to do at all times which kept us on track because the app took a lot of details and time to work out properly.

**Requirements**

* Description of the process and tools used for requirements
  + We used google sheets and google docs to keep on top of user stories and make sure that everything was on track. We also used Trello to break down smaller tasks.
  + Tools: Google Docs
* # of User Stories (total, per sprint, planned and implemented, US nonfunctional and functional)
  + · 30 User Stories total, 28 implemented.
  + · 35 Functional requirements and 7 non-functional requirements
  + Sprint 1:
    - Planned: 10
    - Implemented: 7
  + Sprint 2:
    - Planned: 14
    - Implemented: 11
  + Sprint 3:
    - Planned: 14
    - Implemented: 12
* What worked well?
  + Each story was split into multiple tasks so that they could be individually completed.
* What did not work well?
  + We overestimated what we could do in the time frame so certain things ended up being left out such as the profile.
* What could be improved?
  + We should have been more realistic from the start.

**Design**

* Description of the process and tools used for design
  + The designs were drawn on the whiteboard and then created using photoshop
* What worked well?
  + We designed the app early so everyone knew what to do and how it would look.
* What did not work well?
  + We changed the theme too many times because we couldn’t decide what looked best
* What could be improved?
  + It would’ve been better to adapt and change the design to better fit the needs of the page.

**Coding**

* Description of the process and tools used for coding
  + Android Studio was used for coding all aspects of coding for the app. The main pages were created first and then pages containing descriptions.
  + Tools: Android Studio, Firebase, yelp API, Google API
* #classes and # lines of Java code
  + 23 Classes, 3,930 lines of java code
* What worked well?
  + Coding was done in teams to limit confusion.
* What did not work well?
  + We did not use github appropriately for commits and thus getting code from each other was a struggle
* What could be improved?
  + Using github for its intended process and communicating when code is pushed.

**Testing**

* Description of the process and tools used for testing
  + The team used Android Studio to test the code and check for bugs and errors. It was tested through either the emulator or an Android smartphone.
* What worked well?
  + We had two different forms of testing our app to get more results.
    - Multiple android emulators were used which simulated the app through a virtual phone
    - Two members had physical androids which they downloaded apk to and tested it
* What did not work well?
  + Some team members didn’t have the same emulator, so on one emulator everything appeared normal and the other had strange interactions.
  + Some members had iphones
* What could be improved?
  + Emulators do not work well for GPS so it caused many issues. Having actual devices would be useful

**Evolution**

* How did you plan for evolution and maintenance?
  + The team planned to evolve and maintain pages of the app during the same Sprint after it was tested successfully.
  + Also many pages layouts changed drastically from the initial draft to the final product.

**Changes**

* What changes did you have in the artifacts and in which ones?
  + There were some changes in the Product Backlog. Features such as the profile were removed
* How does the team handle changes?
  + The team handled changes well and adapted to them very easily.

**Team**

* Statistics # of hours worked overall or per sprint
  + Per Sprint:
    - Kito: ~16 hours
    - Stephan: ~16 hours
    - Stephanie: ~16 hours
    - Vincent: ~16 hours
    - Manan: ~16 hours
* What worked well?
  + The team was very good at communicating with each other. We interacted with each other on a daily basis, whether it was online or face to face.
* What did not work well?
  + There was some procrastination when it came to assigning tasks and working on them.
* What could be improved?
  + Time management could be improved, the team would sometimes procrastinate on their tasks.

**Communication**

* Statistics # of communications (face-to-face, slack, Facebook etc.)
  + We had 3 ways of communicating:
    - SMS
    - Slack
    - Physical meetings twice a week
* What worked well?
  + Having face to face meetings helped everyone keep track of what they were doing as well telling the group what is left to get done and by what time
* What did not work well?
  + Using SMS initially proved an issue as it was hard to keep thoughts and sections organized so we switched to slack.
* What could be improved?
  + Communicating more frequently and on time