



# Skadoosh Feasibility

Skadoosh, allowing everyone to find cleaner  
bathrooms and notifying owners of dirty ones.

TEAM YELLOW

CS 410

OLD DOMINION UNIVERSITY

March 20, 2019

# Table of Contents

Biography.....	3
Problem.....	4
Problem Facts.....	5,6,7,8
Problem Characteristics.....	9
Problem Process Flow.....	10,11,12
Solution.....	13
Solution Characteristics.....	14
Goals and Objectives.....	15,16
Solution Process Flow.....	17,18
MFC D.....	19
Competition.....	20,21,22,23
Mockup.....	24,25
Conclusion.....	26,27
References.....	28

# Our Team

3

CS 410 | Team Yello | Feasibility



Brandon Feldhaus  
Project Lead



Kevin O'Brien  
Marketing Research  
Analyst



Bryan Perez  
Software Developer



John Edgar Monroe  
Quiambao  
Software Engineer



James Zeigler  
Software Research  
Analyst



Daniel Zrust  
Engineer

# Problem

- ▶ Real-time feedback about cleanliness and amenities of restrooms available for public use is difficult to find and the ability for facility owners to use this feedback does not exist.



- ▶ 63% of Americans had unpleasant experience with public restrooms [1]
- ▶ Close to 75% of people surveyed said an unclean restroom suggest poor management [1]
- ▶ 500,000 Bacteria found per sq. in. [2]
- ▶ 60% of people delay defecation in public restroom [3]

[\[1\] PR-Newswire](#)

[\[2\] Enviro-Master](#)

[\[3\] Theconversation](#)

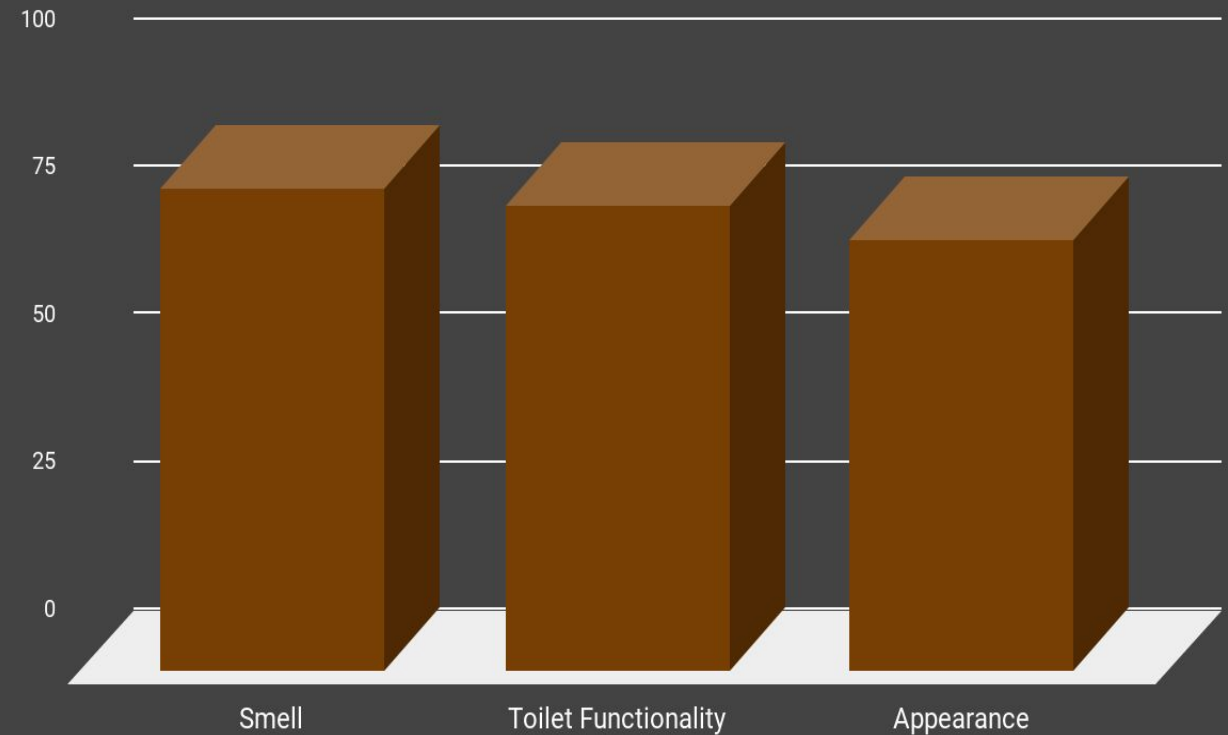
# Top Complaints

6

Survey by The Bradley Corporation [1]

[\[1\] PR-Newswire](#)

Top Restroom Complaints Among Men and Women 18-65



# Bathroom Cleanliness Affects Businesses

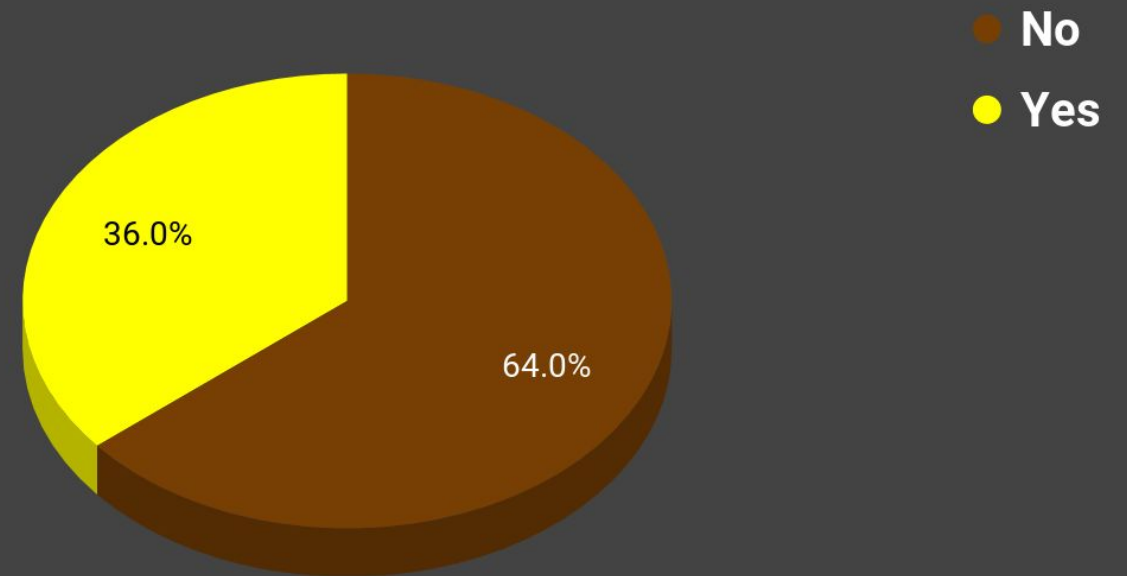
7

- ▶ 64% of people surveyed said they would think twice or not frequent a business if its restrooms are unclean [1]

Survey by The Bradley Corporation [1]

[\[1\] PR-Newswire](#)

Bathroom Cleanliness Affects Business Among Men and Women 18-65



# Coming back?

8

- ▶ Survey conducted showed that 79% of customer would not return a restaurant with dirty restrooms
- ▶ Among the survey, the following locations were also asked about

Survey by the Clintas Corporation

[Clintas Corporation](#)

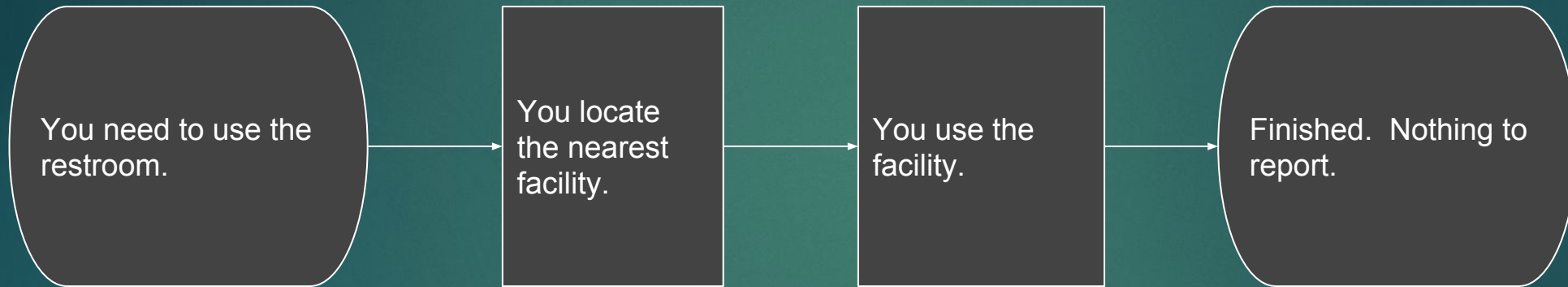




# Problem Characteristics

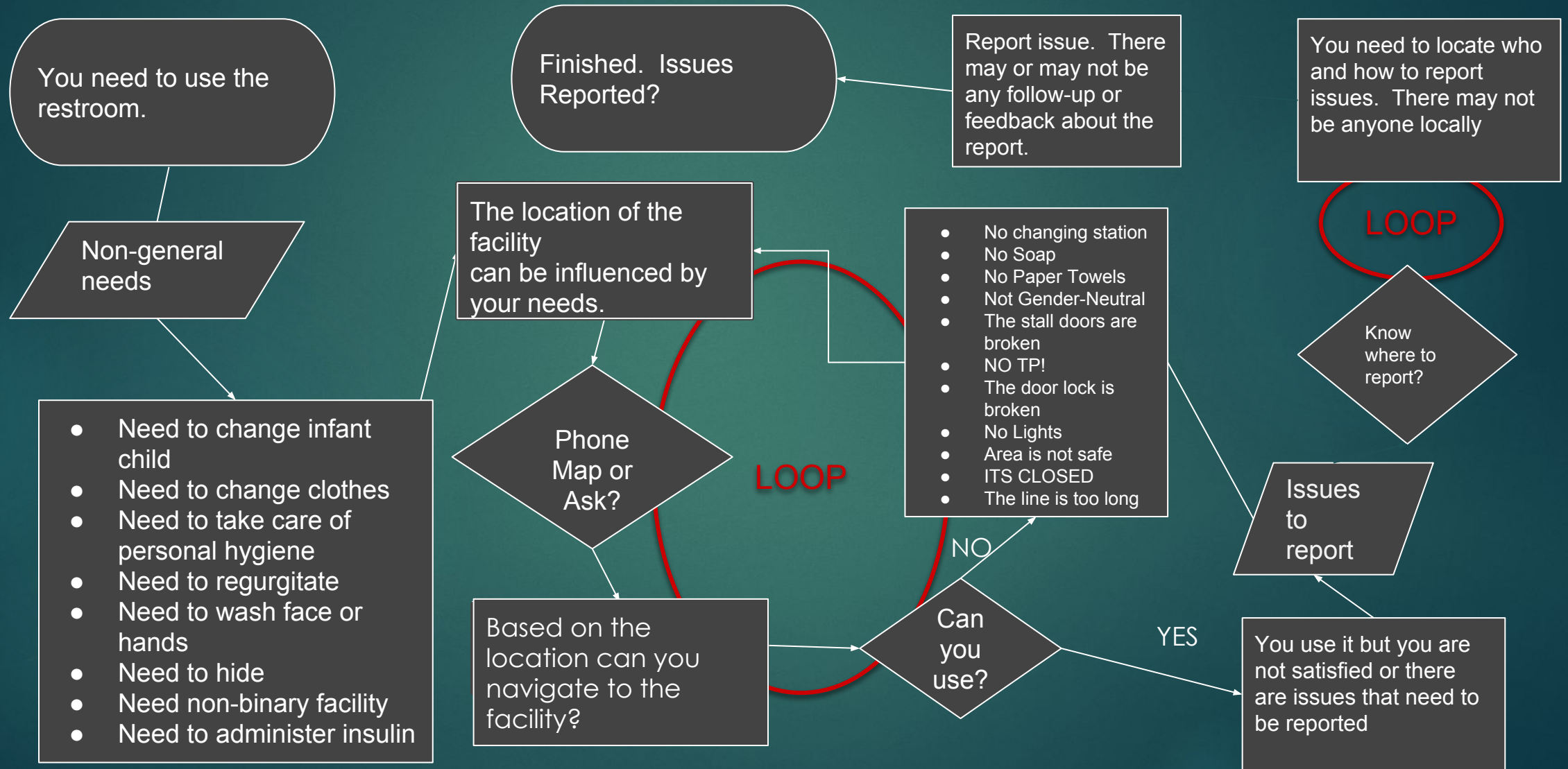
- ▶ No real-time feedback analysis for owners and people concerning restroom cleanliness
- ▶ Lack of amenities such as:
  - ▶ No soap
  - ▶ Hand Dryers not working
  - ▶ No hand towels
- ▶ Quality of amenities
- ▶ Gender neutral restrooms are uncommon
- ▶ Owners lack of cleaning

# Ideal World



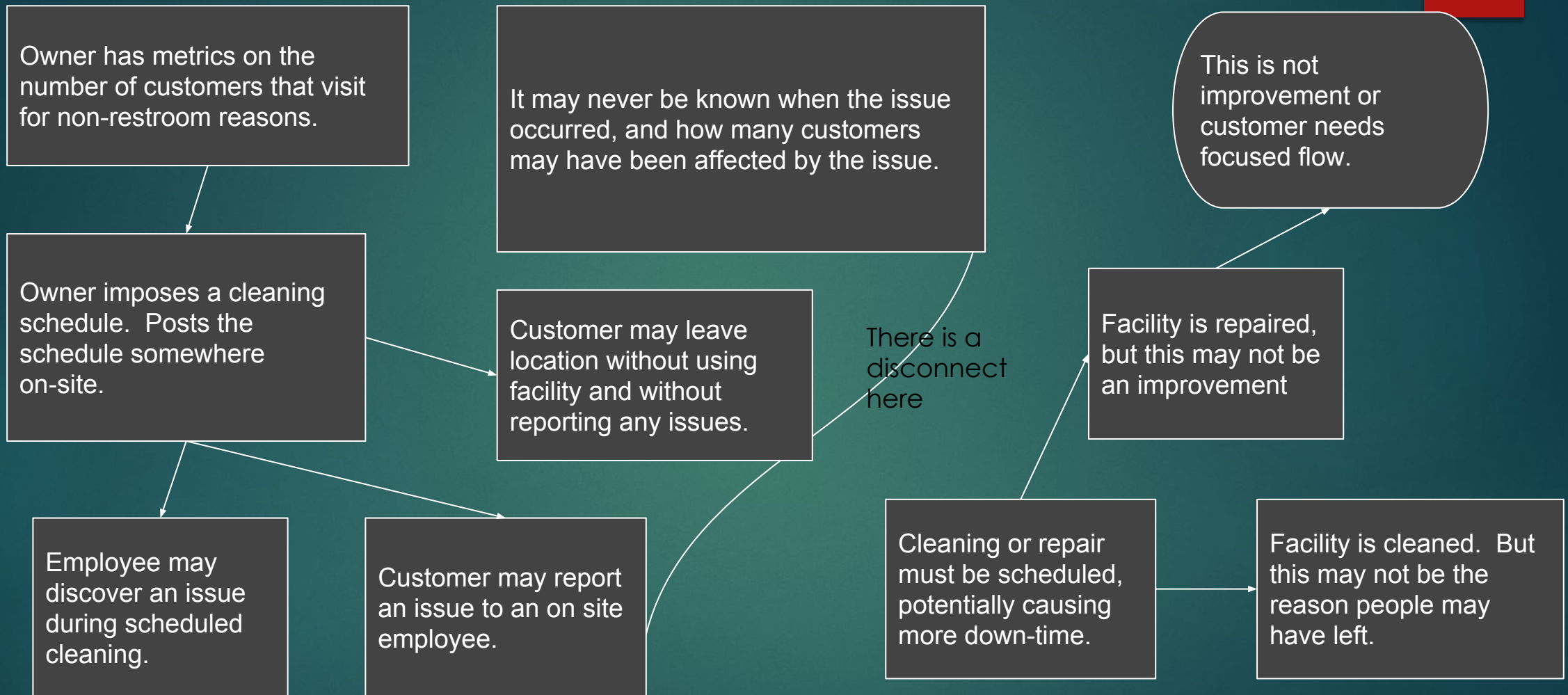
# What actually happens for Users

11



# What about the owner?

12





# Solution Statement

13

- ▶ Skadoosh will provide users with the ability to locate and contribute real-time feedback that will notify owners of their restroom conditions.

# Solution Characteristics

14

- ▶ Feedback
  - ▶ Users can provide real-time feedback about facilities making complaints or suggestions
- ▶ User Profiles
  - ▶ Stores needs into a user profile shared with the application
  - ▶ Users can have multiple profiles
- ▶ Owner Profiles
  - ▶ Able to receive analytics and feedback about the facility
- ▶ Location Profiles
  - ▶ Locations have attributes that can be matched against user needs
  - ▶ Locations can be connected by special Owner Profiles
- ▶ GPS and facility matching
  - ▶ Locations can be located in maps and users can be guided to facilities
  - ▶ Users can create restroom location on their personal map and with verification from other users it can be added to the official map

# Our Duties

15

1. Provide users with the best possible restroom
2. Allow users to give real time feedback about restrooms
3. Provide owners with that real time constructive feedback

# Issues we can't unclog

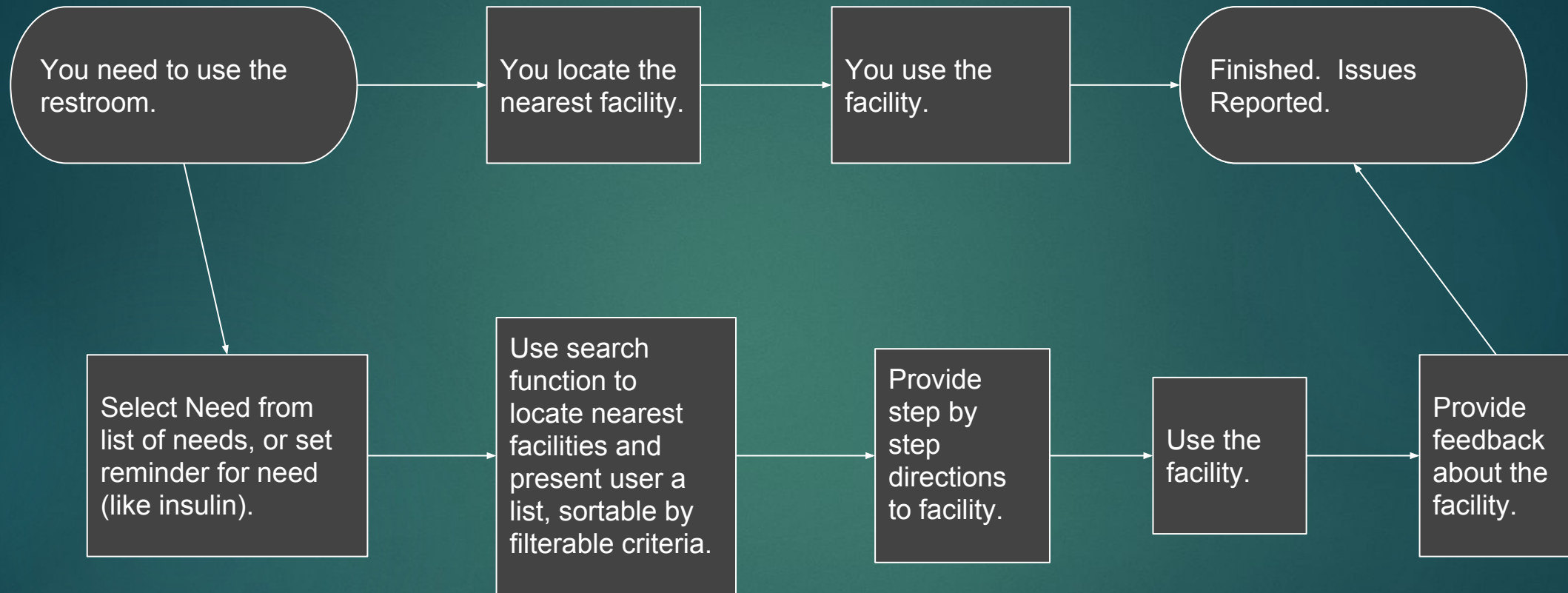
16

1. Actual maintenance of restrooms
2. Impromptu janitorial services
3. Current visual representation
4. Real-time vacancies



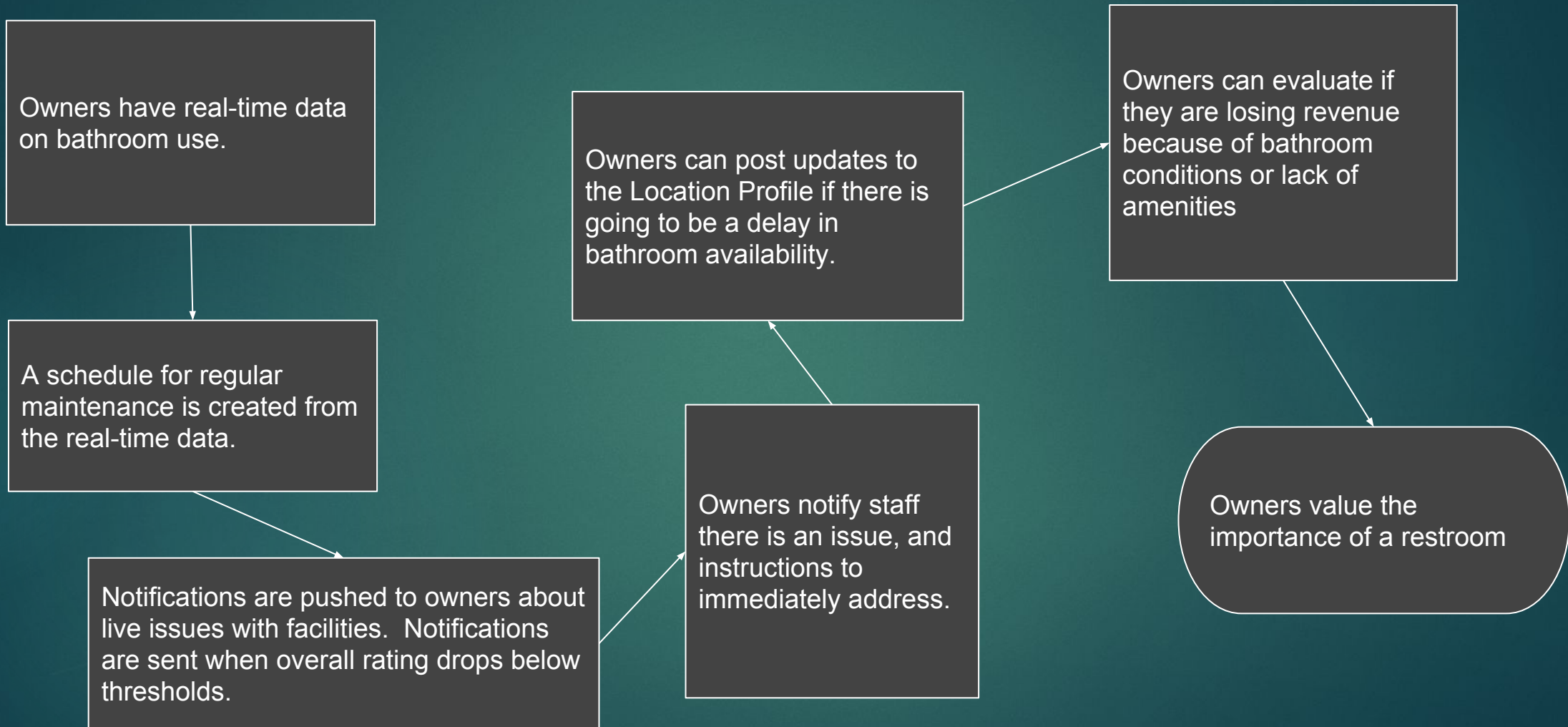
# Can we improve the flow for users?

17



# Owners can have better flow too...

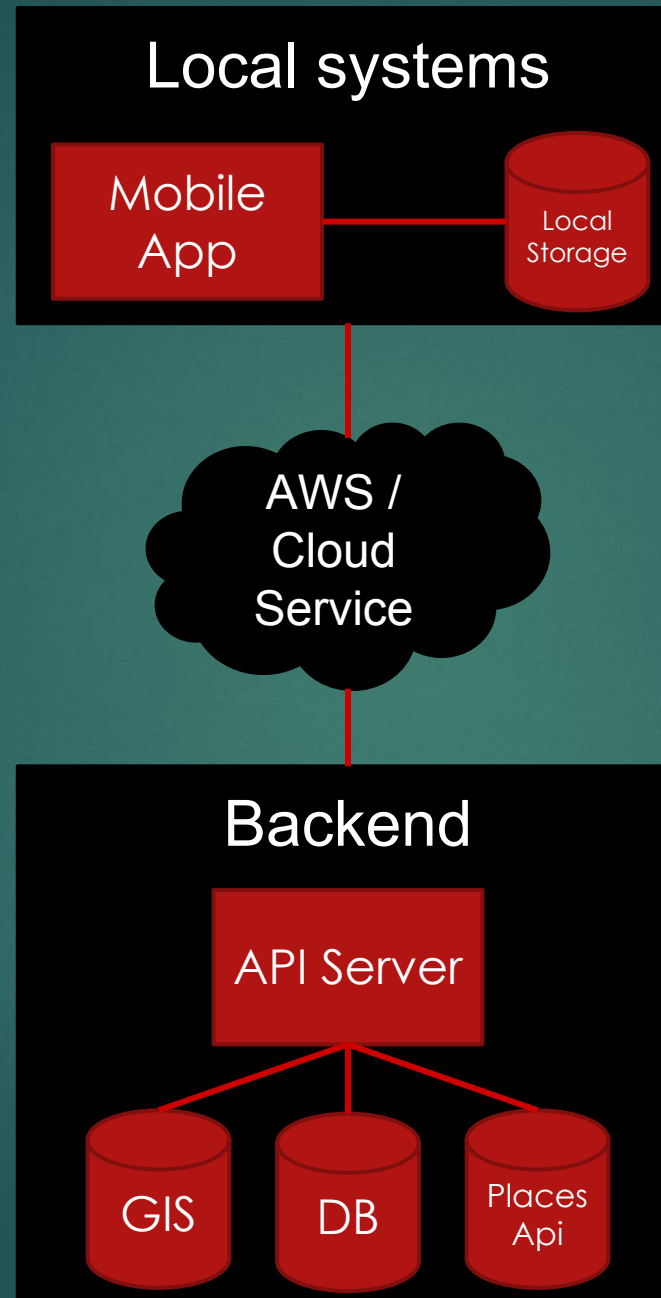
18



# MFCD

19

CS 410 | Team Yello | Feasibility



# MFCD - Local Systems

20

- ▶ Local Storage will hold information such as:
  - ▶ Gender
  - ▶ Age
  - ▶ How long can a user hold before absolutely needing a bathroom
  - ▶ Bathroom Preferences
- ▶ The local storage is used so that the user's personal data does not have to be kept on our DB thus saving the user from unwanted data leakage
- ▶ The mobile app will serve interfaces that allow users:
  - ▶ Rate bathrooms
  - ▶ Find bathrooms
  - ▶ Leave reviews
  - ▶ Owner of restrooms to see stats of their restrooms
  - ▶ See real time data such as: waits, ratings, and reviews
- ▶ Mobile app will be written in React Native



# MFCD - Cloud

21

- ▶ Cloud system will be hosted in AWS
- ▶ AWS Features used:
  - ▶ DynamoDB: restroom ratings, place information, and minor user details
  - ▶ Cloudfront: middleware access to the api service
  - ▶ Lambda: api call handling
- ▶ The AWS cloud system will hold all the virtualization needed for the backend

# MFCD - Backend

22

- ▶ Lambda service using node.js and express.js will handle all the api calls
- ▶ Backend Db will be DynamoDB (no/sql) that will be accessible via AWS library
- ▶ Express app will have access to the GIS information given to us via Google's maps api
- ▶ We will also interface with Google's places api to get vital information such as:
  - ▶ commercial locations
  - ▶ recreational locations
  - ▶ parks
  - ▶ other "expected" restroom locations

# Competition

23

CS 410 | Team Yello | Feasibility

Patron						
Features	Skadoosh	SitorSquat	Toilet Finder	Flush	Where to Wee	Bathroom Scout
IOS	✓	✓	✓	✓	✗	✓
Android	✓	✓	✓	✓	✓	✓
Rating	✓	✓	✓	✗	✓	✓
Directions	✓	✓	✗	✓	✓	✓
Filter	✓	✓	✗	✗	✗	✗
Accessibility	✓	✓	✓	✓	✗	✓
Amenities	✓	✗	✗	✗	✗	✗
Free	✓	✗	✗	✗	✓	✗

# Competition Cont.

24

Owners						
Features	Skadoosh	SitorSquat	Toilet Finder	Flush	Where to Wee	Bathroom Scout
Claim Business	✓	✗	✗	✗	✗	✗
Feedback to/from Customers	✓	✗	✗	✗	✗	✗
Add Restroom	✓	✗	✗	✗	✗	✗
Push Notification	✓	✗	✗	✗	✗	✗



# Competition Cont.

25

						Real-Time
Features	Skadoosh	SitorSquat	Toilet Finder	Flush	Where to Wee	Bathroom Scout
Real-time Feedback	✓	✗	✗	✗	✗	✗
Real-time Rating	✓	✗	✗	✗	✗	✗
Real-time Notifications	✓	✗	✗	✗	✗	✗

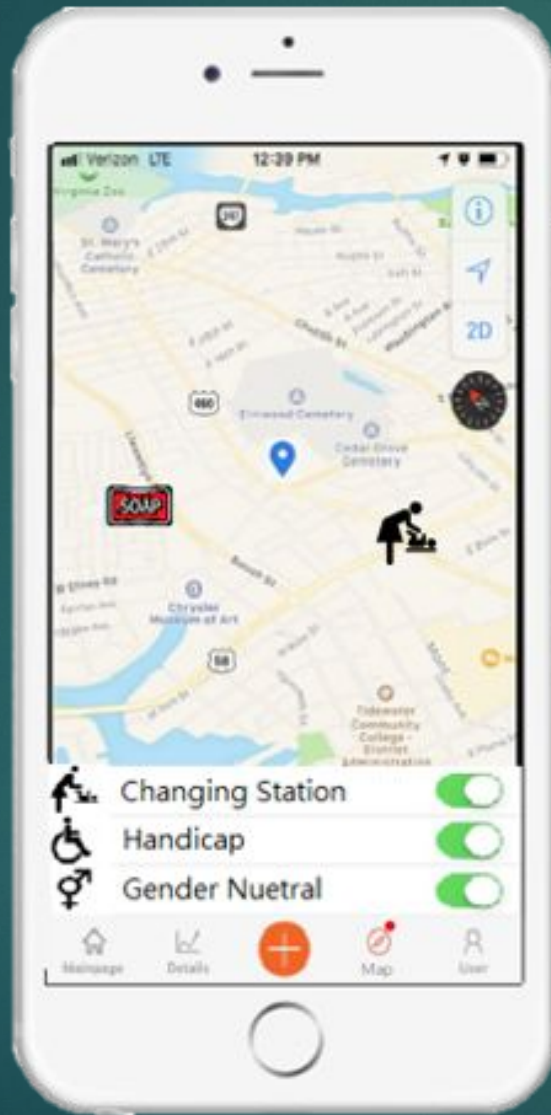
# Competition Cont.

26

- ▶ IOS / Android – app platforms
- ▶ Rating – allowing user to rate restroom
- ▶ Directions – Turn by turn navigation to restroom location
- ▶ Filter – allows user to filter map content based on applied criteria
- ▶ Accessibility – Handicap, gender, family
- ▶ Safe – tells the user if restroom is unsafe i.e. broken locks
- ▶ Free – application is free to use
- ▶ Amenities – shows restroom has changing station / supplies

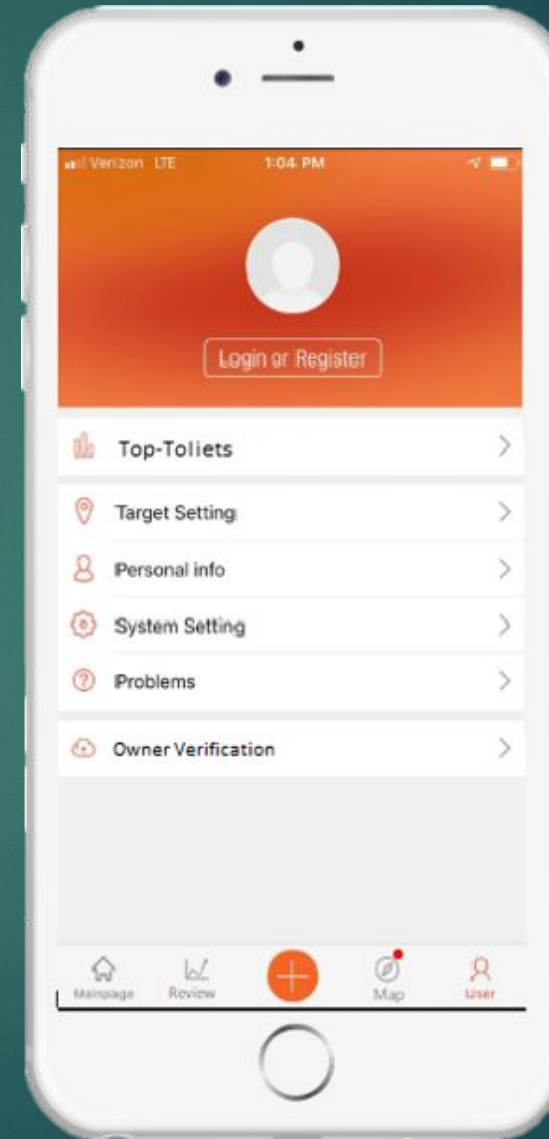
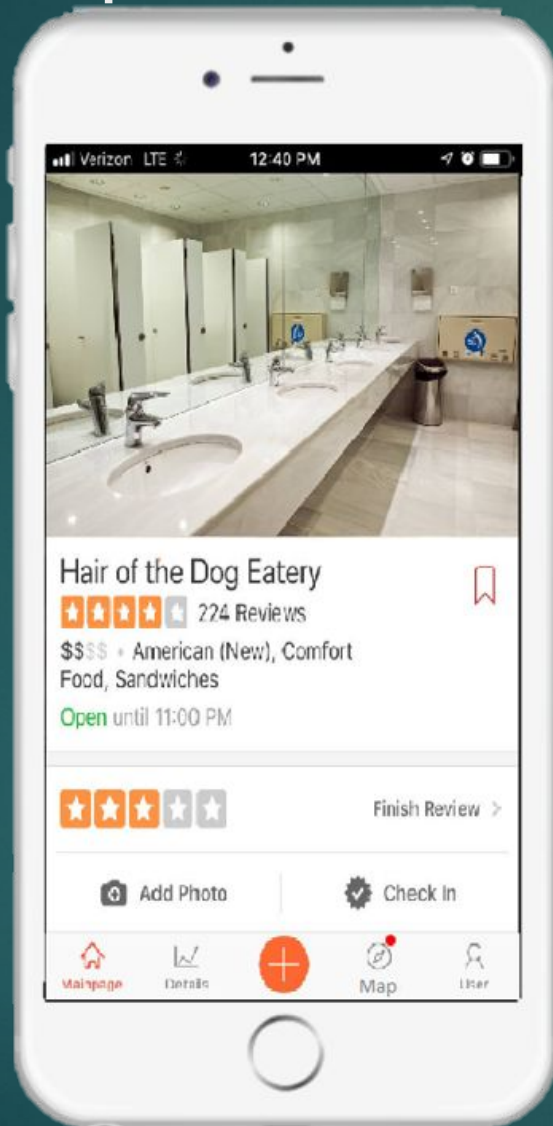
# Mockups

27



# Mockups

28





# In Conclusion

29

- ▶ Finding the “right” bathroom can be hectic
- ▶ Different people have different needs
- ▶ Skadoosh offers a solution

# Skadoosh it !

# References

- ▶ Bradley Corporation. "Americans Come Clean on Messy Public Restrooms in New Survey." PR Newswire: News distribution, targeting and monitoring. 18 Sept. 2013. 13 Feb. 2019  
<<https://www.prnewswire.com/news-releases/americans-come-clean-on-messy-public-restrooms-in-new-survey-224213141.html>>.
- ▶ "Digestive Disorders & Gastrointestinal Diseases." Cleveland Clinic. 13 Feb. 2019  
<<https://my.clevelandclinic.org/health/articles/7040-gastrointestinal-disorders>>.
- ▶ "How Dirty Public Restroom Floors Can Infect Your Entire Building." Enviro-Master of Washington DC. 07 Sept. 2017. 13 Feb. 2019  
<<http://www.enviromasterofwashingtondc.com/blog/dirty-public-restroom-floors-can-infect-entire-building/>>.
- ▶ Molotch, Harvey. "Why do public bathrooms make us so anxious, and why aren't we doing anything about it?" The Conversation. 13 Jan. 2019. The Conversation. 13 Feb. 2019  
<<https://theconversation.com/why-do-public-bathrooms-make-us-so-anxious-and-why-arent-we-doing-anything-about-it-50107>>.
- ▶ Person. "This Is How Many People Refuse to Poop at Work." Women's Health. 25 May 2018. Women's Health. 13 Feb. 2019  
<<https://www.womenshealthmag.com/health/a19998266/pooping-at-work/>>.
- ▶ "Stress Constipation: Causes and Treatments." Healthline. Healthline Media. 13 Feb. 2019  
<<https://www.healthline.com/health/stress-constipation>>.