



# Project Globus

Taylor Olson

Kelsey Crea

Jesse Miller

David Crane

# Overview

Introduction

Planning

Analysis

Design

Implementation

Challenges

Senior Design Results

# Introduction

# Introduction

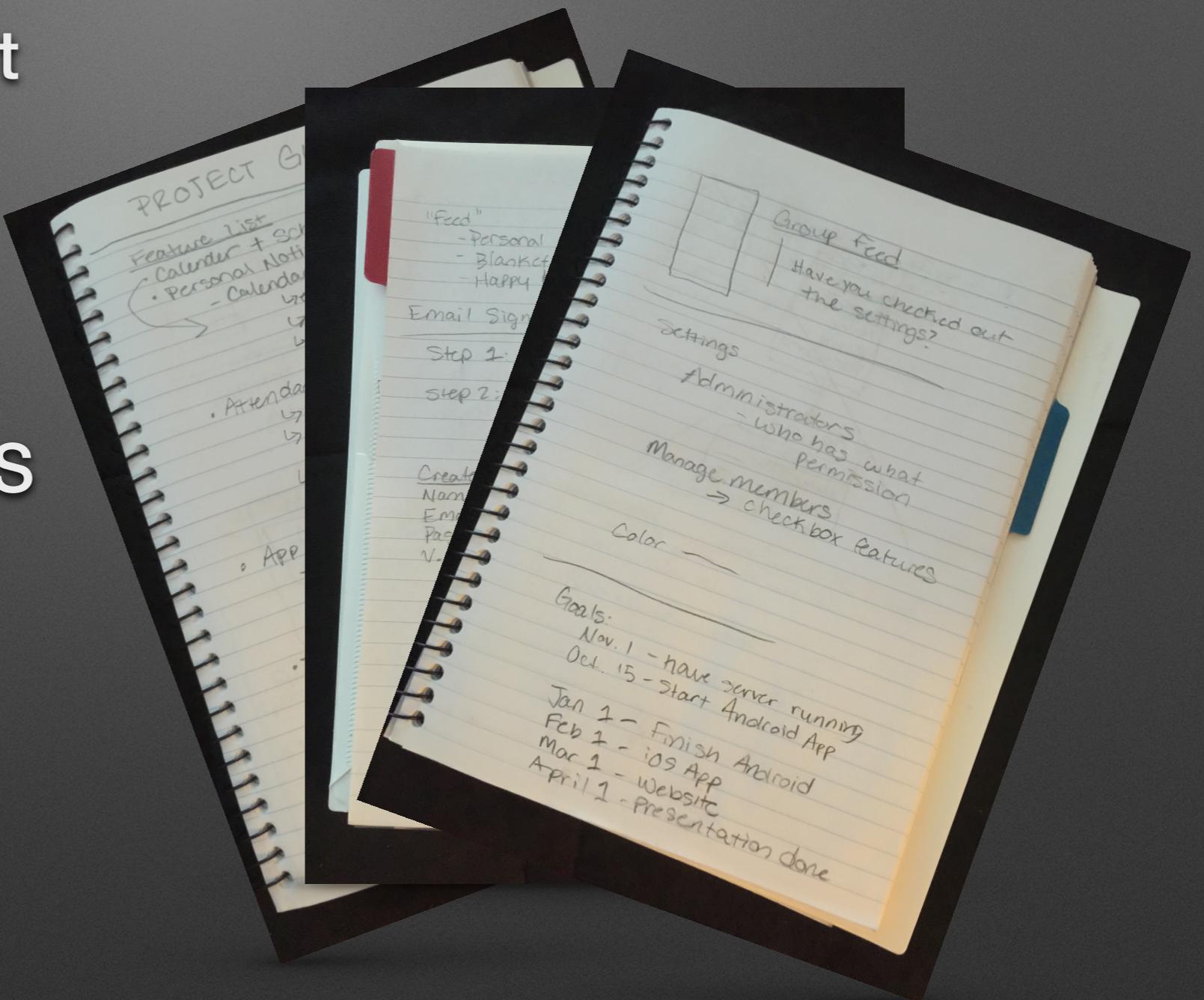
- Project Globus is designed to centralize group management
  - Calendar, Attendance, File Sharing (Google Drive), Messaging
- Many use cases
  - Student groups
  - Professional groups



# Planning

# Planning

- Group Management System
- Original plan
  - Android, Web, iOS
- Planning meetings



# Original Tentative Schedule

October 15, 2014 - Start Android App Development

November 1, 2014 - Have server/database running

~~January 1, 2015 Complete Android App~~

~~February 1, 2015 Complete iOS App~~

~~March 1, 2015 Complete Website Interface~~

April 1, 2015 - Presentation Completed

# Revised Schedule

**October 15, 2014 - Start Android App Development**

**November 1, 2014 - Have server/database running**

**April 15, 2015 - Android Complete**

**April 20, 2015 - Presentation/Paper Completed**

**May 2, 2015 - Final Presentation**

# Analysis

# Requirements Analysis

- Looked at different application use cases
  - Who, what, when, where
- Centrally located Globus features
  - Calendar, Attendance, File share, Push notifications
- Synchronized communication

# Key Design Definitions

Activity

Fragment

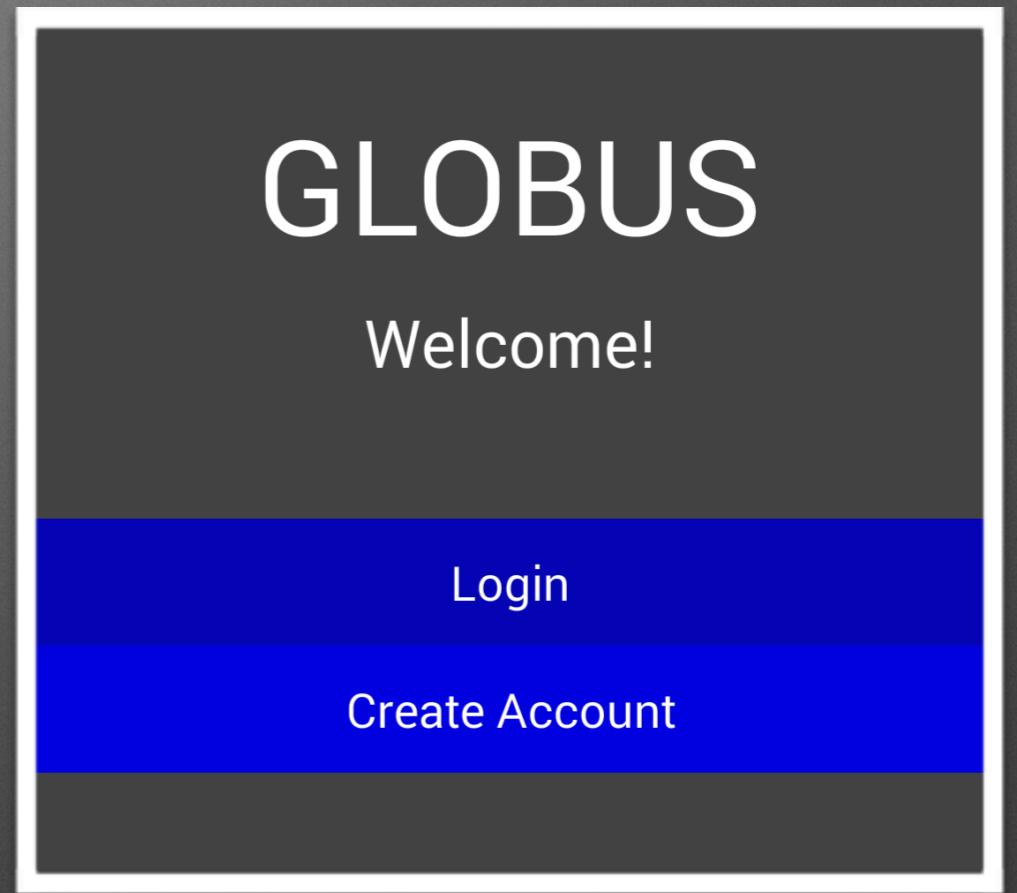
# System Analysis

- Database
- Server
- Android Services
- Android: 3 activities, 16 fragments
  - Activity 1: Login/User
  - Activity 2: Group Management
  - Activity 3: Whiteboard

# Design

# Application Design

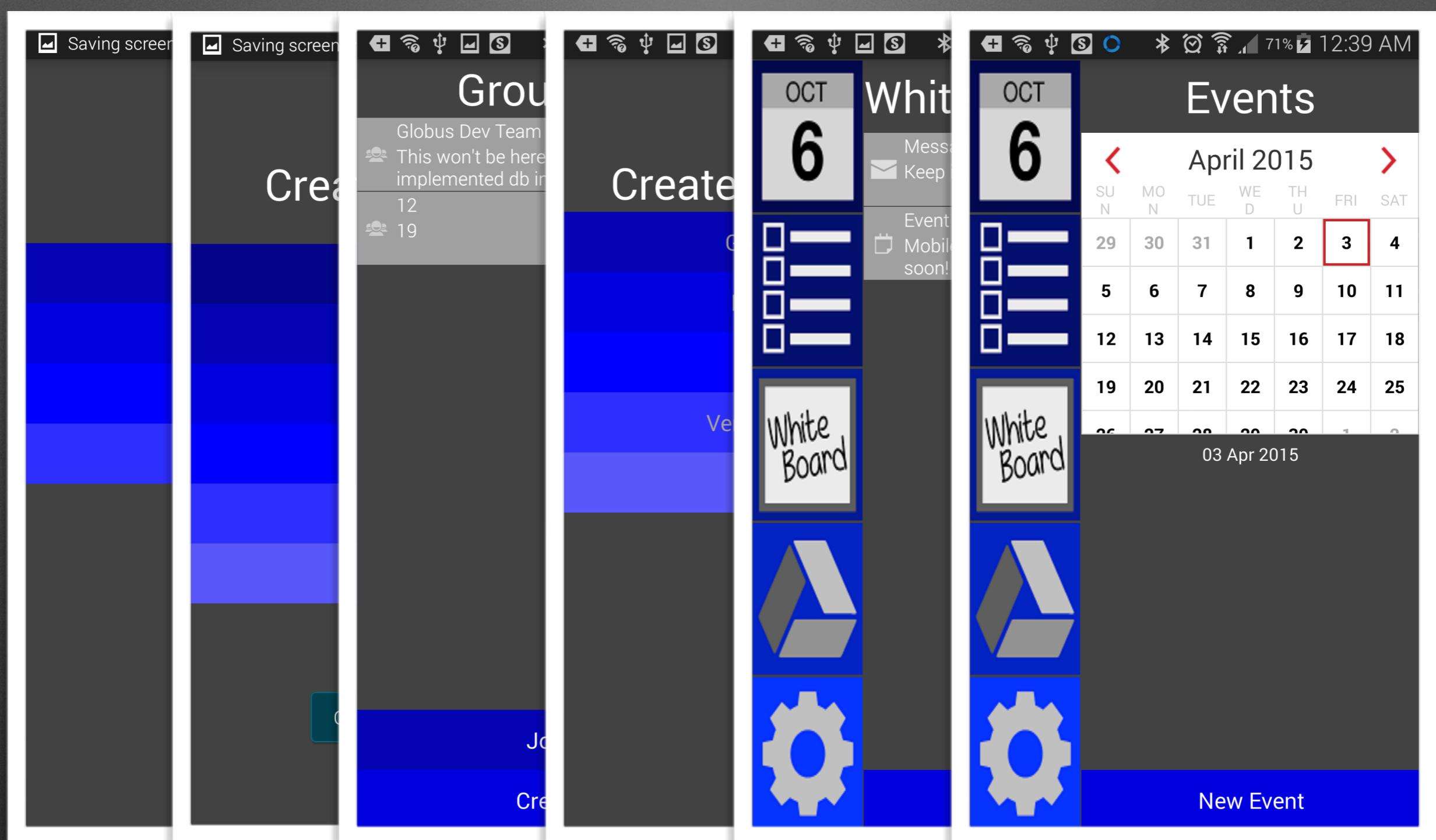
- Intuitive
- User focused on “content”
- In-and-out design
- Fast response
- One color (blue)
- Adaptable



*“Technology is at its very best  
when it’s invisible.”*

*- Apple, Inc.*

# Application Design

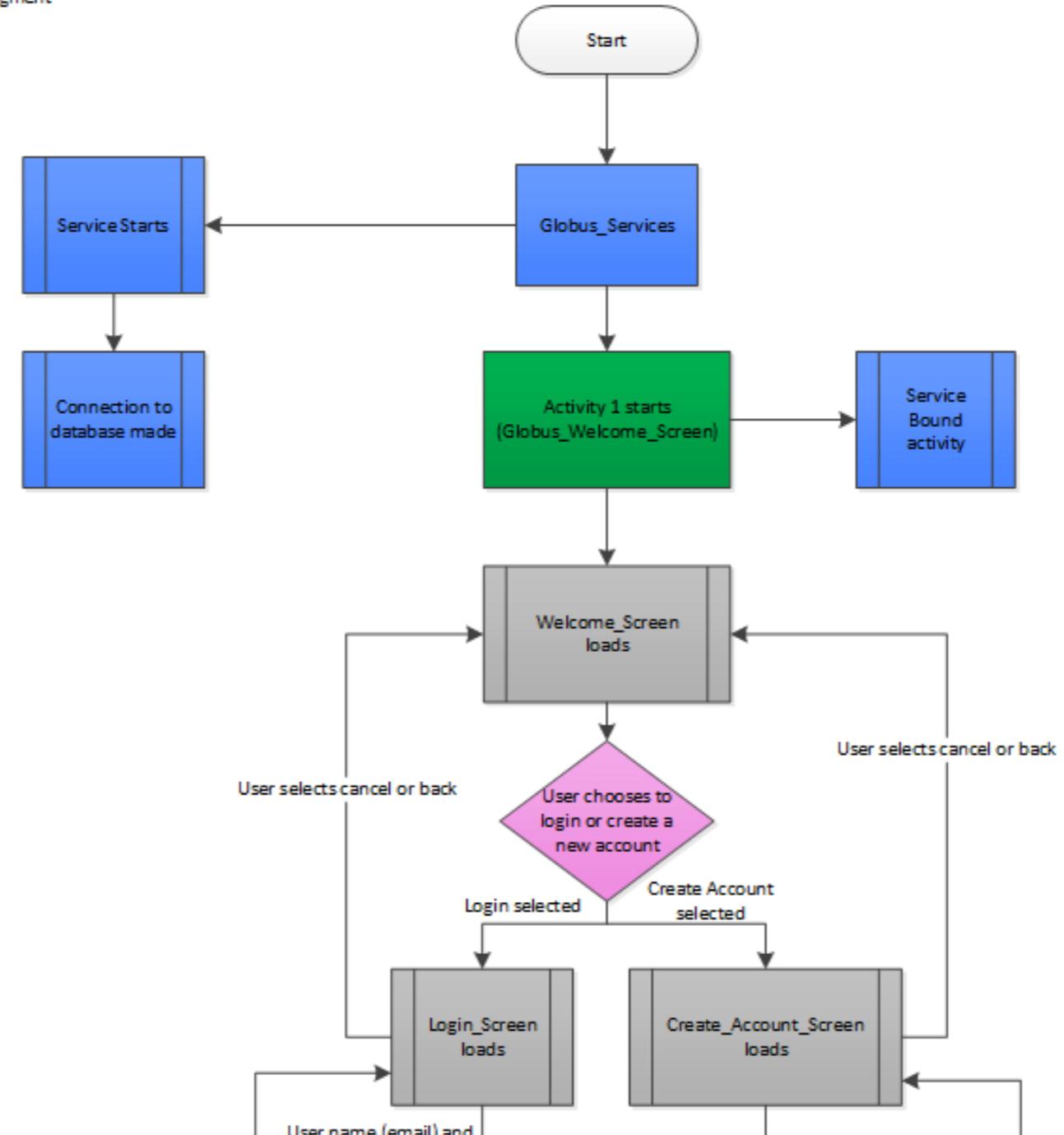


# System Design

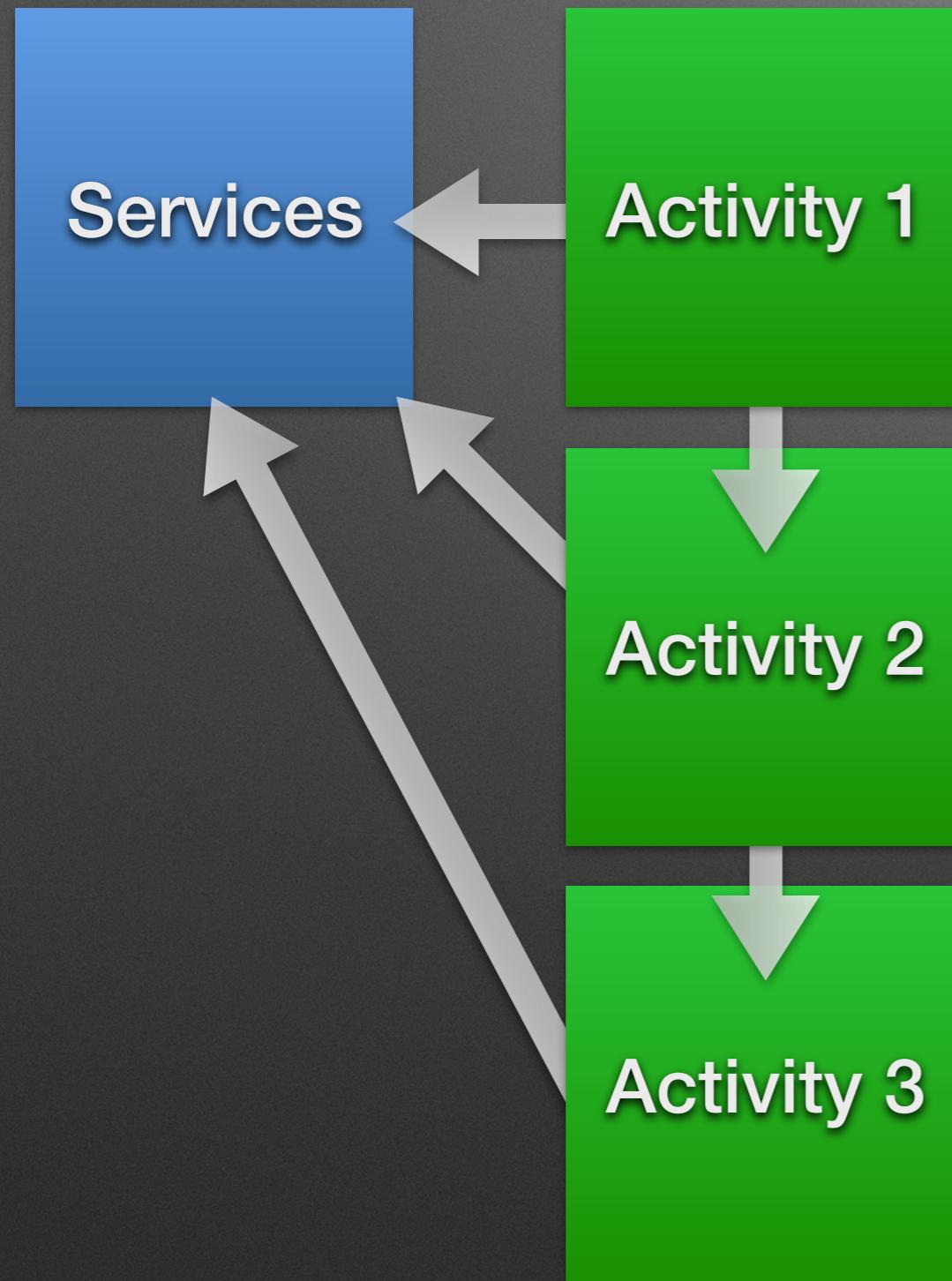
## Project Globus

Legend

Blue – Android Service interaction  
Yellow – Android Service interaction with messages sent/received from database  
Green – Activity starts/finishes  
Gray – Fragments in the activity  
Pink – User choices made on the fragment

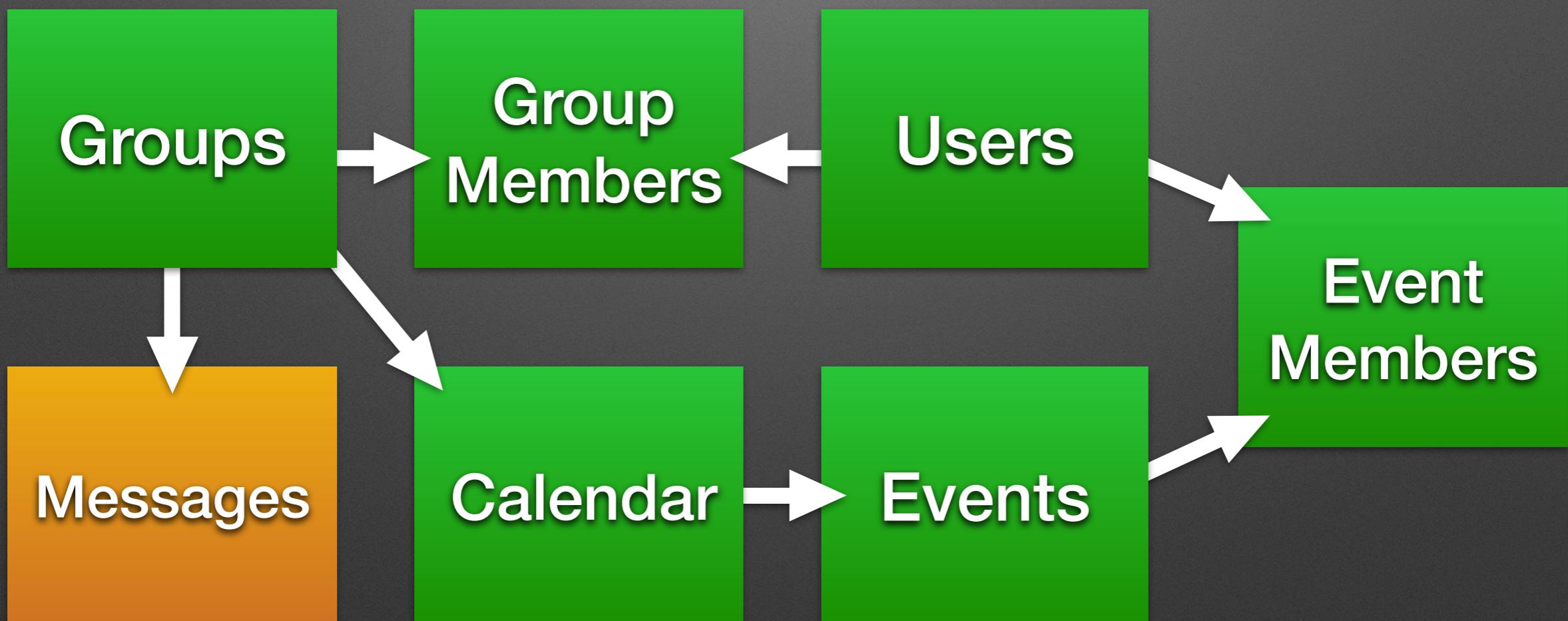


# System Design

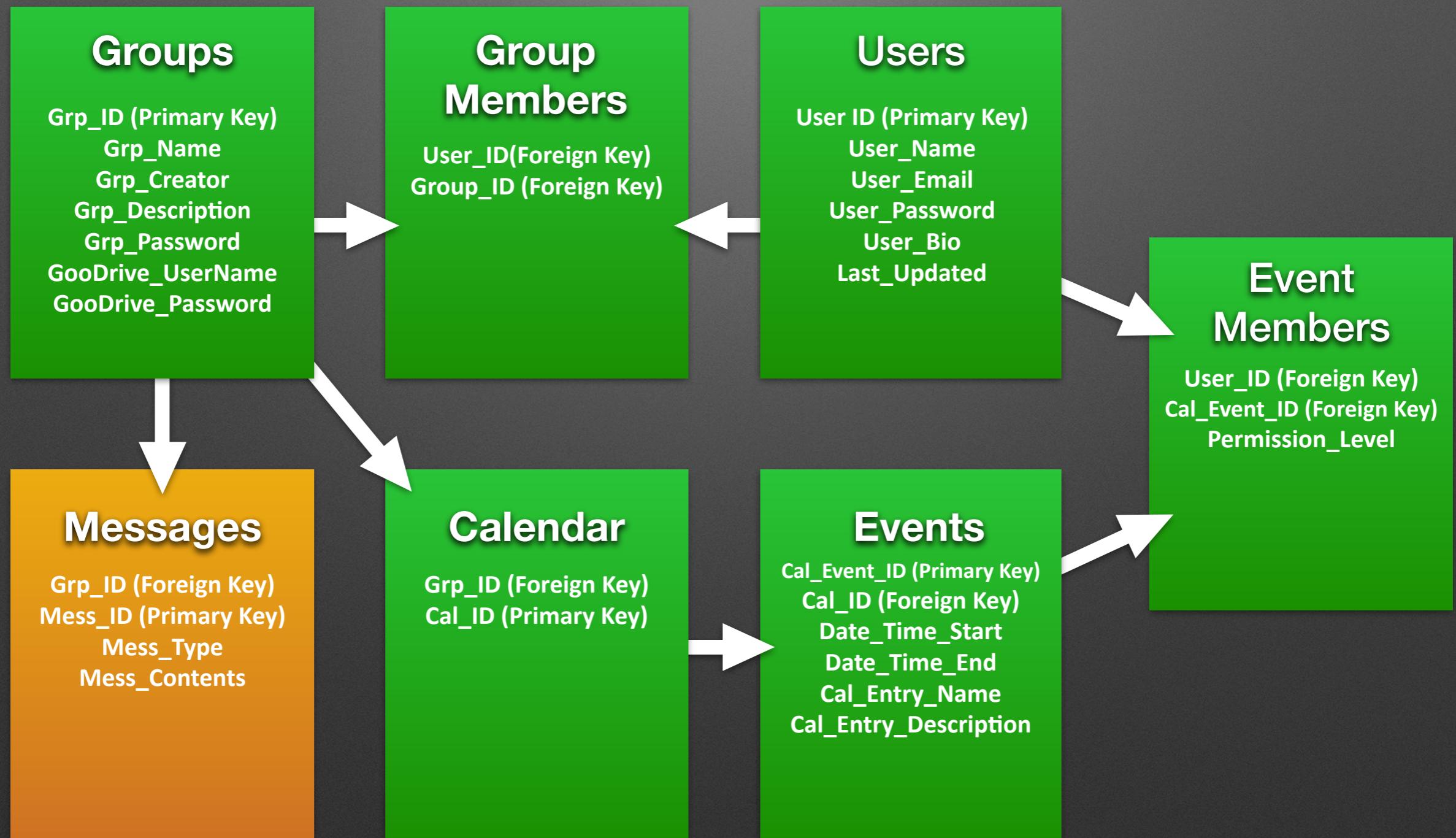


Globus\_Welcome\_Screen  
Welcome\_Screen  
Login\_Screen  
Create\_Account\_Screen  
Globus\_Application  
Whiteboard\_Screen  
Globus\_Group\_Selection\_Screen  
Group\_Select\_Screen  
Google\_Drive\_Screen  
Create\_Group\_Screen  
Settings\_Screen  
Join\_Group\_Screen  
Calendar\_Screen  
Calendar\_ExpandableListAdapter  
Calendar\_Event\_ParentList  
Calendar\_Event\_ChildList  
Attendance\_Eventview  
Attendance\_Attendeeview

# Database Design



# Database Design



# Database

- Amazon Relational Database System
- Not inherently designed for multiple SQL connections
  - Necessitated a server handler



# Implementation

# Database Implementation

- Created account
- Set security keys
- Created the database
- Standard could only handle one connection
  - Developed the server handler

# Server Implementation

- Requirements
  - Single system to handle database interaction
  - Robust, multithreaded system
  - Data reliability and concurrency
- Developed custom Java server
  - Accepts connections, creates threads on demand
  - Scalability

# Android Implementation

- 3 Activities, 16 Fragments
- Android Java, XML
- Android could not maintain persistent SQL connection
  - Server handler implemented
  - Android Services



# Android Implementation

- Android Services
  - Maintain constant socket connection
  - Receive push notifications
  - Provides the needed synchronized communication



# Challenges

# Database Challenges

- Initial Adapter
- Write and rewrite server code
  - Multithreading capabilities
- Android Implementation

# Android Challenges

- Eclipse
- Initial database adapter
- Server interaction
- Services
- Multi-paned fragment
- Calendar

# Senior Design Results

# Senior Design Results

- How to work in a technical group setting
- Adapting workflow with deprecated documentation
- Building large scale software systems
- Scalable database system

# Summary

## Introduction

## Planning

## Analysis

## Design

## Implementation

## Challenges

## Senior Design Results

# Thank You

Special thank you to:  
Ruben Gamboa, Advisor  
Jim Ward, Lecturer  
Video Cast

# Questions?

## Project Globus

Taylor Olson

Kelsey Crea

Jesse Miller

David Crane

