Birthday-Planner iOS application for managing and coordinating birthday events and reminders

iOS application development (CSE 4083)

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- Background
- Motivation
- Existing work

- Problem statement
- User stories

- Design principles
- GUI Design
- Software classes
- Navigation method

- Coding standards
- iOS framework
- Dependencies
- System requirements

- Results
- GUI testing
- Feature testing

First presentation

Final presentation

Deliverable

Introduction

- The impact of hectic lifestyles on remembering and celebrating birthdays thoughtfully is **challenging**.
- The **aim** of the project is to create an intuitive and user-friendly Birthday-Planner iOS application that simplifies the process of planning and coordinating birthday events, encouraging meaningful and well-organized celebrations
- The **proposed methodology** encompasses employing the Model-View-Controller pattern, adhering to software engineering principles, with rigorous testing to efficiently manage and celebrate birthdays.
- The **value proposition** is that our app provides a seamless and user-friendly solution to effortlessly manage birthdays, ensuring timely reminders and personalized planning.
- **Expected outcome** is a user-friendly Birthday-Planner iOS application, adept at addressing the challenges of efficient birthday organization, thus enhancing personal connections.
- The work is **aligned** to enhancing the joy of birthday celebrations.

Software requirements specification

Problem statement

- Busy lifestyles
- Inadequate planning
- Forgetting special occasions
- Impact on relationships
- Creating memorable moments

User stories

- *Persona*: Everyday Celebrator
- *Need*: Effortless Birthday Engagement
- *Purpose*: As an everyday celebrator, I want a simple tool that allows me to easily add and save upcoming birthdays, ensuring I never miss wishing my relatives and friends on their special days. Timely reminders are essential to prompt me, as I often get caught up in daily routines. Viewing a calendar with highlighted birthdays allows me to plan my schedule effectively, ensuring I can spread joy and well wishes to my loved ones consistently.

Design

- **Design principles**
  - User Centric design
  - Simplicity
  - Observer Design Pattern(Notifications)

- **GUI Design**
  - Native iOS app theme.
  - DatePicker, TextFields Widgets.

- **Software classes**
  - UINotifications class
  - AppDelegate class for managing persistent context.
  - User class
  - Birthday class

- **Navigation method**
  - Navigation Controller

Implementation strategy

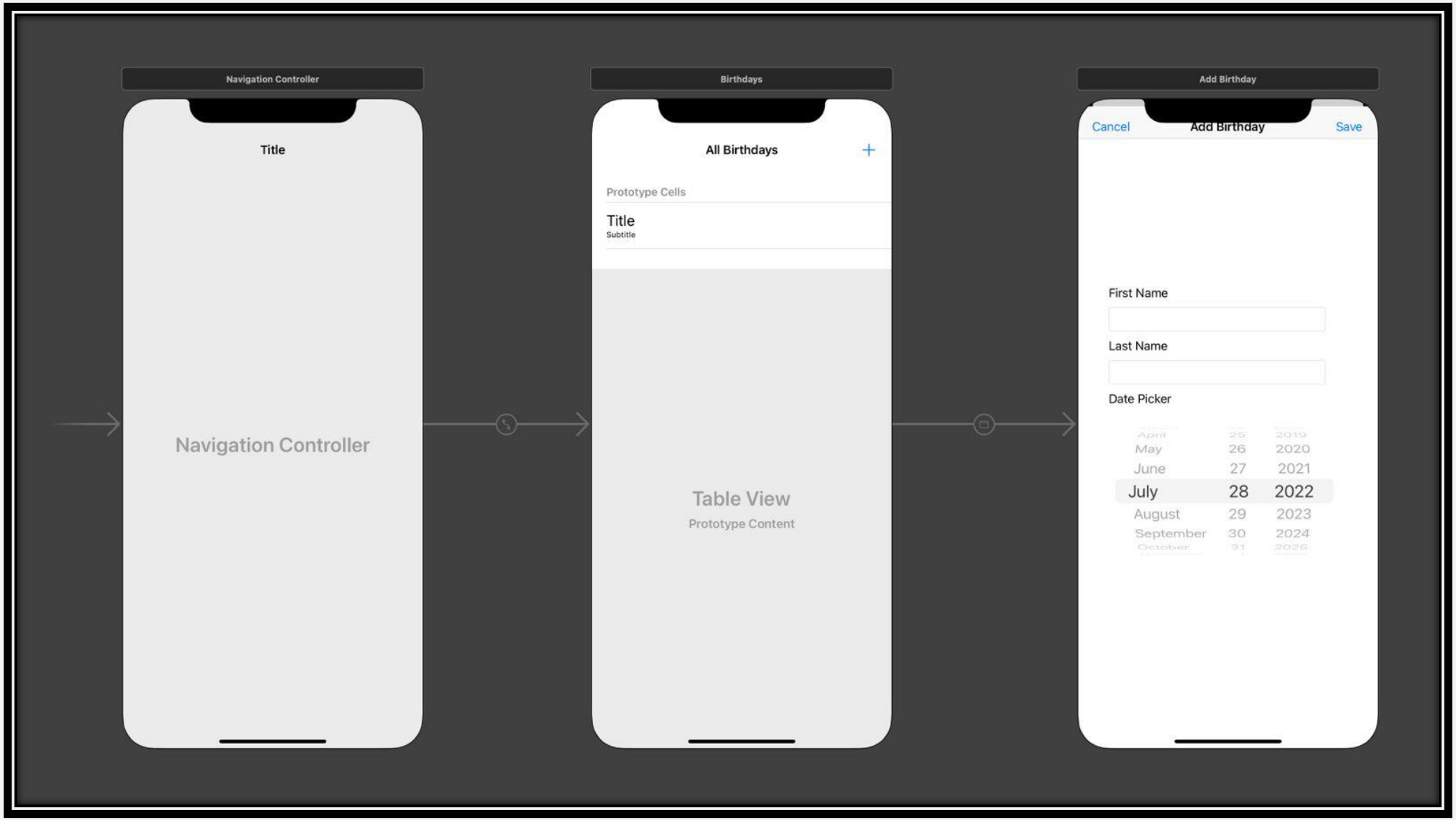
- **Coding standards**
  - Conforms to Swift Style guide.
  - Camel casing.
  - No semicolons.
  - Max line width is 100 characters.

- **Dependencies.**
  - Fully Native application, no external dependencies, apart from Xcode 14 and having an Apple device.

- **Software engineering principles followed**
  - SDLC flowchart followed.
  - Feasibility Study → Design → Code → Testing → Deployment
  - Abstraction, Encapsulation.
  - DRY – Don’t Repeat Yourself principle.

- **System requirements**
  - Apple MacBook or desktop computer with 8 GB RAM and 200GB hard disk with a high-resolution display for app development and either the iPad or mobile device for app deployment.

Results


Navigation Controller
Title
Navigation Controller
Birthdays
All Birthdays
Prototype Cells
Title
Subtitle
Table View
Prototype Content
Add Birthday
Cancel
Add Birthday
Save
First Name
Last Name
Date Picker
May 26 2020
June 27 2021
July 28 2022
August 29 2023
September 30 2024

Testing

- **GUI testing**
  - Checking constraints:
    - Whether works on all screen sizes.
    - Whether works on different orientations.
    - Making sure there's no skew or glitches.
  - Whether proper CTA (Call to Action) buttons have been enforced.

- **Features testing:**
  - Whether logic works as intended.
  - Edge cases and boundary values taken into consideration
    - No First Name
    - No last name
  - Whether data is persistent across multiple sessions.
  - Whether notifications are triggered correctly and at the right time, in the correct timezone.

Dissemination

To the scientific community: To facilitate remembering the birthdays of close ones, not just applicable to the scientific community but to everyone across the globe, the scope is massive.

Publicizing: By using the MAHE innovation center and the Ministry of Education's help, we can make this project widespread, by adding many other features in the long run.

Target community audience: Everyone in the world can use our app, there is no restriction whatsoever, just an iPhone is needed.

IP (Intellectual Property): Our project has been implemented from scratch and using native iOS libraries. We have not applied for any license however we do plan on making part of our app open-source.

Commercialization: We can use a freemium model, where only some features are available for free, for accessing all features, the user must pay a small fee.

TRL(Technology Readiness Level) achieved: Level 4: We have almost built a prototype, which hasn't been tested in a relevant environment.

Conclusion and future scope

- Not just birthdays, this can be extended to all kinds of events like marriages or dinners.
- Scheduling meets during these events, an end-to-end system for managing all aspects of events, for example, number of people attending, available caterers, number of people sharing the same birthday, etc.
- Connecting to Firebase for push notifications.
- Migrating to a database instead of using persistent context. A No-SQL database works best.
- Adding proper versioning to the app.
- Streamlining development workflow, using CI/CD techniques.
- Improving the UI.

From simple wishes to celebrations grand,
spread happiness across the land.

References

- Develop in Swift Fundamentals Xcode 13: https://books.apple.com/us/book/develop-in-swift-fundamentals/id1581182804
- YouTube channel - SwiftKoding4Everyone: https://www.youtube.com/@SwiftKoding4Everyone
- Coursera course - Swift 5 iOS App Developer Specialization: https://www.coursera.org/programs/manipal-education-tguaf/specializations/swift-5-ios-app-developer
- Swift documentation: https://developer.apple.com/documentation/swift