Software Engineering
Capstone Topic Approval Form

The purpose of this document is to help you clearly explain your capstone topic, project scope, proposed software product, and timeline. Identify each of these areas so that you will have a complete and realistic overview of your project. Your assigned instructor cannot approve your project topic without this information.

STUDENT NAME and ID:

Student name: Tabitha Harr

Student ID: 011392963

INFORM INSTRUCTOR:

Potential use of proprietary company information: (N)

ANALYSIS:

1. Project topic AND description:

    - **Topic:** Personal Vacation and Excursion Planner - Android Application
    - **Description:** I will develop an Android application designed for individuals and travel groups to plan, organize, and track their vacations. The app will allow users to create comprehensive vacation itineraries, add detailed excursions to each vacation, and manage all associated information in a centralized location. The goal is to replace fragmented tools like notes, emails, and multiple calendar apps with a dedicated, integrated platform.

2. Project purpose AND goals:

- **Purpose:** To solve the common problem of disorganized travel planning by providing a user-friendly, all-in-one mobile application that reduces stress and prevents missed bookings or scheduling conflicts.
- **Goals:**
    - Implement core CRUD (Create, Read, Update, Delete) functionality for vacation entries.
    - Implement nested CRUD functionality for excursions linked to specific vacations.
    - Design an intuitive user interface to display all stored vacation and excursion data.
    - Integrate the Android AlarmManager to send users automated push notifications for upcoming vacation and excursion start/end times.
    - Implement an Intent-based sharing feature to allow users to send vacation itinerary details to others.

3. Descriptive method:
    - The application's primary method is descriptive data management. I will use **Java in Android Studio** to build the application logic and user interface. Data persistence will be handled by an **on-device SQLite database**, where I will define two main entities (Vacation and Excursion) with a one-to-many relationship. All user interactions will revolve around creating, reading, updating, and deleting this structured data, which will be displayed using Android components like RecyclerView.
4. Predictive/prescriptive method:
    - The application will incorporate a predictive/prescriptive layer through a **proactive notification system**. The system will monitor stored date/time fields to *predict* when a user needs a reminder. It will then *prescribe* an action by automatically generating and sending a contextual push notification using Android's AlarmManager and NotificationCompat services. Additionally, the sharing feature prescribes collaborative action by enabling users to easily send itinerary data to travel companions.

DESIGN and DEVELOPMENT:

1. Explain why the problem and software product you have proposed are worthy of study:
    - This project is worthy of study as it addresses a genuine, widespread user need with a practical software solution. From an educational standpoint, it provides comprehensive, demonstrable experience in core software engineering competencies required for mobile development: designing and implementing a relational database schema, writing efficient application logic in Java, constructing a multi-screen user interface following Android best practices, and integrating complex OS-level services (notifications, alarms). The resulting portfolio piece showcases the ability to conceive, architect, build, and deliver a full-featured, data-driven mobile application from start to finish.

2. Projected outcomes and deliverables:

- A fully functional Android application (APK file) installable on any Android device or emulator.
- Complete, well-commented source code within an Android Studio project.
- Technical documentation including a system design overview and an Entity-Relationship Diagram (ERD) for the database.
- A demonstration video showcasing all core features in operation.
- User-oriented documentation explaining key app functions.

3. Estimated number of hours for the following:
    i. Planning and design: 15 hours
    ii. Development: 100 hours
    iii. Documentation: 20 hours
    iv. Total: 135 hours

4. Projected completion date: Janurary 15, 2025

IMPLEMENTATION and EVALUATION:

1. Describe how you will approach the execution of your project:
    - I will execute this project using an **Agile-inspired, phased development approach**. Phases will be treated as iterative sprints focused on specific deliverables:

    - **Phase 1 (Planning & Setup):** Finalize database schema (ERD), create detailed UI wireframes, and set up the Android Studio project with the core database helper class and entity models.
    - **Phase 2 (Core Feature Development):** Develop the Activities and Fragments for the main vacation list and detail views, implementing full CRUD operations for the Vacation entity.
    - **Phase 3 (Nested Feature Development):** Develop the excursion management screens, implementing CRUD operations for the Excursion entity linked to parent vacations.
    - **Phase 4 (System Integration):** Implement the notification system using AlarmManager and develop the Intent-based sharing functionality.
    - **Phase 5 (Testing, Polish & Delivery):** Conduct thorough unit and integration testing, refine the UI/UX, create all final documentation (system overview, user guide), and record the application demonstration video.
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INFORM INSTRUCTOR OF:

Potential use of human subjects (Y/N): N

Potential use of proprietary company information (Y/N): N

STUDENT NAME:

_____Tabitha Harr_____

By submitting this form, you acknowledge all information provided is accurate and that any changes to the topic, proposal, or goals must be discussed with your assigned instructor prior to continuing.

INSTRUCTOR NAME: Candice Allen

INSTRUCTOR SIGNATURE:

INSTRUCTOR APPROVAL DATE: 12/03/2025
