

Project Proposal

CSE 403 – Software Engineering

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Introduction

Most of the calendars and planner applications available today only display a schedule which the user has manually planned. They do not offer any smart scheduling or schedule optimizing features to assist the user in planning their day, by presenting the user with an optimized itinerary. For our project, we propose the development of a smart day planner application, which provides the user with an optimized schedule, taking into account various constraints like appointment times, activity durations, activity locations, travel modes and distances.

Objectives

- To provide an easy to use application that acts like a personal assistant by providing user with an optimally planned day schedule.
- Optimize schedules taking into account various user constraints as well as other information like location of activities, their duration, and travel times depending on mode of transport (driving, cycling, and walking).
- Provide flexibility by re-computing an optimized schedule to accommodate change in plans by user.
- Provide access to schedule anytime and anywhere by syncing the day's schedule with a central server.
- Provide a web interface and/or Android phone application.

Target Customers

- Busy Parents – Both working and stay at home parents need to juggle various activities throughout the day, like work, children's activities, groceries, gym, etc.
- Students – In addition to school schedule, students also have to manage their extracurricular activities, work, social life, etc.

Value Proposition

This application fills the need of having a tool that plans and optimizes your schedule so that you can be more productive by focusing on the tasks at hand, and not be burdened with the details of planning. The absence of any schedule optimizing tools in the market will put this application in a unique position.

Application Features and Description

Requires user to sign in to access the tool via a web page (or Android application).

The user provides the events or task that need to be completed during a day. For each task/event the user provides following information which allows the system to build a schedule and optimize it:

- A name/title for the task or event
- Start time of the event, if it is not flexible
- Expected duration of the task
- Location of the task/event
- Priority of event on a scale of 1-5
- The time that the user wishes to start and end their day with a possible "all nighter" option

In order to calculate the optimal schedule, the application uses Google Maps/ Transit information to get distances and travel times between event locations. The application then displays an optimized schedule to the user, which the user can modify if required. The schedule is then saved to a central server and can be accessed by the user at a later time, with an option to print it out. If at any point in the day, the user cannot meet the schedule, the application tries to determine if the schedule can be recalculated to still accomplish the day's needs. In the case that the day is too full, lower priority tasks are dropped in favor of higher priority. If there is an event that cannot be accomplished, the application makes note of it and keeps track of the percentage of missed events per day in order to encourage users to make an effort to achieve their set tasks.

Tools and Resources

HTML / CSS

Javascript

Google Maps API

OpenID or Google Account integration

Amazon Web Services or CSE web server

Challenge

The biggest challenge that we envision in developing this project will be coming up with a good software design including an efficient and friendly user interface. A good design early on will make the development process easier by allowing team members to be assigned well defined areas of responsibility. Reduced coupling in the design will allow for better software verification, and also improve flexibility in case implementation has to be modified at a later stage. The main product challenges will be to create an effective algorithm for generating schedules, making sure Google integration works properly and that the database is secure and reliable.