Universidad de Puerto Rico

Recinto de Mayagüez, 00680

Departamento de Ingeniería de Computadoras

ICOM-4009/INSO-4101

Introduction to Software Engineering

Proposal: Managing Subscription Services

Authors: Richard Vázquez Burgos, Francis J. Patrón, Genesis M. Borges Aponte, Joshua E. Corretjer Rivera, Víctor A. Laureano Hermida, Juan J. Velázquez Mañana

Table of Content

Informative

Name, Place and Date

A. **Name:** Managing Subscriptions Services
B. **Place:** The project will be developed in Puerto Rico. The developers will work remotely due to COVID-19 restrictions and meetings will be conducted virtually.
C. **Date:**
    - Starting Date: January 21st, 2021
    - Estimated Goal Date: April 26th, 2021

Partners

A. **Clients:** The target audience are the people who use subscription services which is already a large part of the population which is expected to continue increasing in the future.

B. **Developers:** Team of 6 students from the University of Puerto Rico Mayaguez.
    - Richard Vázquez Burgos
    - Francis J. Patrón Fidalgo
    - Genesis M. Borges Aponte
    - Joshua E. Corretjer Rivera
    - Víctor A. Laureano Hermida
    - Juan J. Velázquez Mañana

C. **Experts:** Dr. Marko Schutz (current professor)

Current Situation

Before online subscription services, cable subscriptions were the most popular form of television entertainment. Subscription services soon replaced cable providing companies during the “internet revolution”. When more and more companies populated this market, licenses of movies and tv series were spread throughout these companies resulting in exclusives for each company and the rise of piracy. Nowadays, it is not uncommon for a single person (or household) to pay for 3, 4 or even more of these services. Now consider that other internet markets have adopted this business model and one ends up with an untraceable mess of weekly, monthly, and even yearly charges. For example, the same person that has a Netflix account most likely also has one for Spotify, Prime, Disney+, Codecademy, etc. and the list goes on. Most people rely on the bill in credit card statements to keep track of said services.

Some companies (even the bigger ones) give a free trial and rely on the user to forget about it and be charged. This practice can be considered unethical and, to this day, the most reliable way to avoid it is to set up an event in a phone calendar, or sticky notes.

Needs

- There is a need to obtain information of the most popular subscriptions plans on the internet.
- There is a need to obtain information about monthly prices, including variations like: trials, family plans, combinational plans, and special plans (veteran, teacher, professor, students).

Ideas

- Help customers keep track of subscriptions and bills without compromising their security.
- Give reminders to customers on subscription and bill due dates.
- Show customers how much their services cost in total monthly or yearly payments.
- Display additional information of current subscription services such as alternative plans and their price.
- Make information accessible and easy to read so that the user can make informed decisions with their subscription services.
- Use a web-based application for convenience of use.

Concepts

- Subscription services container
    - This is where the subscription services and their general information about the subscriptions can be displayed.
- Security
    - Users will be required to create a unique account.
- Alerts
    - Special way of displaying urgent information with respect to a subscription service.

Scope

- The project's scope is limited to people of age who have monthly/ yearly subscriptions. Mostly people with more than 3 services. The project will include the most popular subscription services of many different categories. This includes services other than the common entertainment ones, such as Hulu and Netflix. Some categories of subscription services the team plans to implement include: Entertainment, Education, Software as a Service, Subscription Boxes and Ecommerce.

Span

The project's span is to help people keep track of their subscriptions while organizing the clutter of monthly payments. This domain will require an account where the user can login and gain access to see the subscriptions they added and decide whether to add an additional subscription or remove/edit a previous subscription from the account.

Synopsis

The internet is a great tool because it has a vast amount of resources and services. However, sometimes it is hard to keep track of what services you may acquire from this tool. The project consists of developing a web application to help users keep their subscriptions or services in an organized manner for the user. We aim to improve the users economy by providing useful information. Transparency and organization of the data are going to be implemented in this project for better understanding to the average user. Making the user feel secured with sharing the data is a priority because of the sensitive nature that this implies. Further

development could establish a system where it keeps track of coupons and specials deals offered by subscriptions.

Assumptions and Dependencies

A. Assumptions:

- Users will have subscription-based accounts for the implementation of the project.
- Users provide a contact method for the web app service notifications of subscription status, new services, subscription fee changes, etc.
- The user will be able to access this web app on multiple platforms.
- Subscription service providers can be accessed through the internet.
- Users grant us access to their basic subscription information by answering the needed questions and store this information as part of their account on the web app.
- Variation of subscription plans and prices will be accessible by the service providers.
- The project will follow a change control approval process for modifications of scope.
- Due to the academic nature of the project the team members are not obligated to provide software maintenance or additional support for the web app, doing so would be a voluntary decision of each member.

B. Dependencies:

- Users must create profiles in order to use the web app services.
- The web app must be user friendly and easy to navigate.
- The user can log into an account on a daily basis, maintain its profile information and previous changes.
- Successful subscription management depends on the data or information that users input on the web app account.
- There needs to be a database that lists all the following: different subscription services available online, the different fee periods, cancelling policies, customer service contact information, and input fields for user suggestions of new services emerging.

Implicit & Derived Goals

1. Provide a fully functioning web-based application that benefits the needs of consumers in the subscription service community by improving their finances and managing the activities of the numerous subscription memberships.
2. Provide team members with the experience and knowledge of developing consumer-based web application and methodologies such as agile software

development.

Standards

- IEEE Standards

Contracts and Design Brief

A. Contracts:

- The developers (6) will be divided in two sub-teams:
  - Front-end development (3)
    1. Genesis M. Borges Aponte
    2. Víctor A. Laureano Hermida
    3. Juan J. Velázquez Mañana
  - Back-end development (3)
    1. Richard Vázquez Burgos
    2. Francis J. Patrón Fidalgo
    3. Joshua E. Corretjer Rivera
- Additionally, there will be one member in each sub-team tasked with keeping documentation of the project:
  - Front-end - Juan J. Velázquez Mañana
  - Back-end - Francis J. Patrón Fidalgo

B. Design Brief:

- The project will be a web browser based application, where users can register and then input their current subscription services. There will be a front-end developed with React JS, the backend will use Actix Web library from React, and a SQL database to store needed information.

Logbook

A. Date: January 20th, 2021 - A3 Discussion and Team Introduction

B. Date: January 21st, 2021 - A3 Decision

C. Date: January 22nd, 2021 - A3 Coordination

D. Date: February 1st, 2021 - Project Tools, Languages, and Task Division

E. Date; February 3rd, 2021 - Proposal Discussion

Descriptive

Rough sketch domain description

To provide the most useful information in our subscription manager system we need to describe, as recommended by the book: “Software Engineering 3”, a structure of the entities, functions, events and behaviors. In other words, gain knowledge on the most used subscriptions on each category that we wish to implement. Analyze their prices, their cycles and find ways to manipulate the data. The calendar used for the payments track and the users which have a profile are going to be the entities. We require that the user inputs the information needed for the subscription plans and this counts as our first set of functions. The subscription plan includes the time-period of the subscription and its payment.
It is also required to know if the user has a record with us. If they do not, then the sign up event will occur. By effectively identifying the latter, we can simplify some levels of abstraction. We can say that there exists the financial information which we can describe as: payments. Then, there is the person we wish to give the functions mentioned, that we define as: user. The person will be selecting the services he utilizes, that are defined as: subscriptions. Finally, we display this information on a calendar, and will call them: dates.

Domain Narrative

We rely on other companies and their subscription services that they provide. Each of these companies can have multiple subscription services and may have multiple variations inside each of these. Also, some services have a max amount of people that can access it before needing to upgrade the tier. Users of the services have these main functions that they can do:

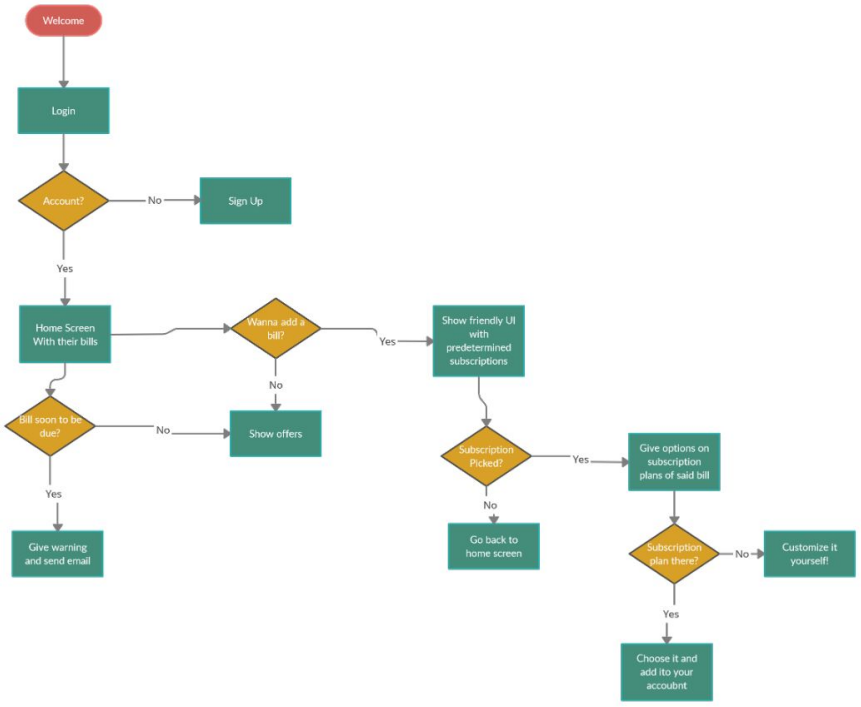
- Choosing a plan – Users browse a selection of services within one company and select one (or more than one in some cases) that best matches their interest.
- Join a service – This means agreeing to the company’s terms of service and providing a payment method.
- Changing plans – users can modify which plan they currently have inside of a subscription service.
- Pausing – Stop the service and stop paying from the next payment cycle until it is uncaused.

- Cancelation – Users can cancel anytime their subscription services right before the next payment cycle.

A middleman between the user and these subscription services could have two main functionalities: actively modifying the subscriptions from within or reactively providing information about the service to the customer. The latter acts more as a third-party receipt and/or invoice which these have the following functions:

- Adding items – Adds an item to a pool of similar items.
- Information Browsing – Existing information about an item can be accessed and compared with each other.
- Compare – Two or more items can be compared with their respective information.
- Remove – Removes an item from the pool of items.

In most cases a receipt is created automatically, but in some special cases it is done manually with carbon paper and a pen. Its purpose is to reflect a transaction being made and as evidence that said transaction has been done. Invoices have a similar purpose, but they reflect future transactions with previously agreed terms.



This diagram represents a rough sketch of the web application.

Requirements

The application must store the information provided by the user (their log-in information if the user desires to, active subscriptions and monthly payments). It

must be able to notify the user when their payment deadlines are approaching. Finally the application should be accessible and easy to use to facilitate the process for the user.

Terminology

- Subscription Service- service that provides its users with benefits for a periodic fee.
- Subscription- a specific amount of money that is paid periodically for a specific service.
- User- person using the application
- Payment- an amount paid
- Category- any group or division in a system of classification
- Notification- a manner of informing the user of an event within the application
- Cancellation- the act of calling off an action or service

Analytical

Concept Analysis of Rough Sketch Domain Description

When analyzing the domain, it can be concluded that all the contents of the application can be included and related to the subscriptions. When choosing a plan the user will be selecting a subscription and joining its service. All the services included in the application that can possibly be selected by the user are considered subscriptions. The other methods of the application such as the payment will be connected to obtaining a subscription. A payment is a process that must be completed for users to join a service. It will be a process that must be repeated on specific dates. For this reason processes such as notifications and the calendar will be necessary for the user to complete these payments.

Validation

To improve the application the app must be able to run smoothly and it must be easy to access. The team would seek out to prevent issues such as: “the app would crash randomly”, “the app does not run constantly” and “I cannot find the services I am looking for”. There are other major issues they will seek to prevent

which would be deemed as unacceptable. These cases would be situations like: “It lost my information” and “The application did not notify me of an upcoming payment”. Issues such as this would be considered critical failures for the application as it would not be fulfilling its intended purpose.

Verification

- The application stores the data that the user provides. Such data would be: user’s info, active subscriptions and monthly payments.
- The application tracks the exact days of your subscription and it notifies the user when it’s time to renew or pay their subscription.
- The application allows the user to add and remove any subscriptions that they have in the account.