



Class Attendance Forecasting System (CAFS)

Module 1 Assignment Submission

Software Concept

by

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1. Introduction

The name of my assigned organization is: ClassPass

This concept document efficiently examines ClassPass, a membership service that allows users to schedule fitness classes and workouts at various studios and gyms. It includes an analysis of ClassPass, its applications, target audience, strengths, weaknesses, and challenges it has faced. It gives insights into the strategic decisions that helped ClassPass become successful.

Additionally, it proposes an update to the ClassPass software: the Class Attendance Forecasting System (CAFS). This program uses data science to optimize products and operations with the goal of increasing customer satisfaction and studio profitability. The analysis includes details of the functionality that will be supported and the expected benefits for the end users (businesses and clients) and the organization.

2. Researching My Assigned Organization

ClassPass is a subscription-based service that allows users to book fitness classes and wellness appointments across various studios and gyms. To understand the organization better, I explored the ClassPass website and searched for additional information on the web. I attempted to find information about the end users, subscription plans, limitations of the services offered, how the website is integrated with other systems, customer feedback and reviews, and the challenges faced by the organization. Learning about how the organization operates was not a challenging task. I explored the publicly accessible portions to understand the overall functionality such as fitness blogs, registration steps for businesses and customers, and searching for nearby classes.

Below is a summary of the research efforts and the most useful sources of information:

1. Organization's Website:

URL: [ClassPass Website](#)

Format: Web page

Description: The ClassPass website provides the primary interface for users to explore, book, and manage their fitness and wellness activities. It offers the following features: browsing available classes, checking schedules, managing subscriptions, and accessing user reviews and ratings.

2. Reddit:

URL: [Important Limitations of ClassPass](#)

Format: Article

Description: Reddit is a popular platform for sharing real user experiences and perspectives. This article provides a list of the website's limitations and the factors to consider before purchasing a ClassPass subscription.

3. Medium:

URL: [Is ClassPass the Next Unicorn or the Next Bust?](#)

Format: Article

Description: This article provides an in-depth analysis of ClassPass, its history, the challenges faced in the initial phase, and how these challenges were overcome. It gives insights into the strategic decisions that helped ClassPass become successful.

4. Health and Wellness Blogs:

URL: [ClassPass Review - Health and Wellness](#)

Format: Article

Description: This article provides information about the membership options, pros and cons, and some tricks and tips for using ClassPass.

5. Business Blogs:

URL: [How does ClassPass work for Businesses](#)

Format: Article

Description: This article presents answers to some frequently asked questions from businesses about using ClassPass and explains how it can benefit them if they enroll.

6. YouTube:

URL: [How to use ClassPass and Book Your First Fitness Class](#)

Format: Video

Description: This video explains what ClassPass is, discusses pricing options, and shows how to book classes.

7. News (Data Breach):

URL: [The Hacker News - Data Breach](#)

Format: Article

Description: This news article is about a data breach that exposed 1.5 million ClassPass user accounts for sale on the dark web.

3. Describing My Assigned Organization

ClassPass is a health and wellness app that partners with studios, gyms, salons, and spas worldwide to give their users access to the best of the best! ClassPass is available in all 50 states and 30 countries globally. The app has over 30,000 studio and gym options and over 5,000 beauty partners. It offers a diverse range of activities, including yoga, Pilates, strength training, cycling, and more, catering to different fitness levels and preferences.

ClassPass users select a membership plan and receive a monthly bank of credits that they can use to book fitness, beauty, and wellness experiences at participating businesses. The number of credits needed to book a class or service varies and is listed next to every class or service listing. The credit value of a class or appointment is determined by various factors such as time, popularity, studio equipment, genre, location, and amenities.

Services Provided:

1. **Class Booking:** Users can browse and book classes at various fitness studios and gyms based on location and time preferences.
2. **Wellness Appointments:** Options for booking wellness services such as massages, facials, spas, haircuts, and more are provided.
3. **Subscription Plans:** Offers multiple subscription tiers that provide a set number of credits, which users can use to book classes and appointments.
4. **Mobile App and Website:** Platforms to manage bookings, subscriptions, and access user reviews and ratings.

End Users:

1. **Businesses:** ClassPass provides businesses, such as fitness studios and wellness centers, with tools to manage class schedules, monitor bookings, analyze attendance trends, and promote their services. These features help businesses attract more clients, fill up classes, and run smoothly, making them an important part of the ClassPass system.
2. **Clients:** ClassPass serves fitness enthusiasts and wellness seekers looking for a flexible and varied workout regime. ClassPass allows clients to explore different fitness activities and wellness services without being tied to a single studio or gym.

ClassPass is a well-established company enjoying strong, stable success. Founded in 2013, it has expanded its services globally, adapting to different markets. Despite challenges such as the 2019 data breach that exposed 1.5 million user accounts, ClassPass has maintained a positive reputation and continues to grow its user base. ClassPass is recognized for its variety and flexibility, user-friendly interface, and strong market presence. ClassPass's unique selling proposition is its extensive network of fitness and wellness partners combined with a flexible credit-based system. It remains a popular choice for fitness enthusiasts and wellness seekers.

Popular Products/Services:

1. Variety and Flexibility: The ability to choose from numerous classes across different studios and gyms makes it easy for users to maintain a diverse workout routine.
2. User-Friendly Interface: The platform is praised for its easy-to-use website and mobile app, which streamline the booking and management process.
3. Global Presence: ClassPass operates in multiple countries, providing extensive options for users worldwide. It is recognized for its innovative subscription model that offers users access to a wide variety of fitness classes and wellness services.

Challenges and Weakness of ClassPass:

1. ClassPass started as DabbleNYC and then rebranded to Classtivity, initially offering a website to book classes. ClassPass faced many challenges over time. At first, when it was called DabbleNYC and Classtivity, it had trouble attracting users and finding the right product.
2. Even after becoming popular with its new subscription model, the company hit a major problem in 2019 when a data breach exposed 1.5 million user accounts, hurting user trust.
3. Also, users sometimes struggled to find available classes during busy times, which was frustrating. Expanding quickly and keeping high service quality in many cities was also tough.

However, changing the name to ClassPass and switching to a subscription model helped solve early problems with attracting users. This subscription model proved successful, leading to rapid growth and \$82 million in funding within 14 months. ClassPass expanded to over 35 cities, launched mobile apps, and increased monthly revenue from \$200,000 to over \$10 million.

Getting a lot of funding helped the company grow and improve its technology, like launching mobile apps to make things easier for users. These changes helped ClassPass become a leader in the fitness market.

4. My Software Concept

I plan to work on upgrading the ClassPass software by implementing a Class Attendance Forecasting System (CAFS) leveraging data science to improve resource management and operational efficiency for ClassPass. I came across some issues in user reviews where individuals often cannot attend classes due to unavailability or increased demand, while businesses experiencing under-enrollment often face decreased revenue as a result. CAFS will use predictive analytics to forecast class attendance accurately to help mitigate these issues. This system will help fitness studios manage resources more effectively by suggesting optimal class schedules, increasing class availability during peak hours, and reducing it during off-peak times. This can lead to better utilization of resources and higher customer satisfaction.

Business Functions Supported:

1. Optimizing class schedules: Based on the predicted attendance, the system will suggest optimal times for classes to maximize attendance and resource utilization.
2. Efficient resource allocation: The system will allocate instructors, facilities, and equipment based on attendance forecasts to ensure optimal use of resources (e.g., instructors, facilities).

Processing Functionality:

1. Attendance Prediction:
 - a. The system will use historical data and real-time updates to forecast class attendance, thereby predicting trends and identifying peak and off-peak times.
 - b. It will incorporate advanced machine learning models for more accurate forecasts.
2. Schedule Optimization:
 - a. The system will suggest optimal class schedules and provide recommendations for increasing classes during peak hours and reducing them during off-peak times.
3. Resource Management:
 - a. The system will provide insights on equipment needs based on attendance forecasts.
 - b. It will provide recommendations for hiring additional staff during peak times.
4. Reporting and Analytics:
 - a. The system will generate reports and visual analytics on attendance trends and forecasts.

Types of Data Involved:

1. Historical Data: Past class attendance records, booking patterns, and seasonal trends.
2. Real-Time Data: Current booking data, and user activity logs.
3. User Data: User profiles, demographic information, and booking history.

4. Class Data: Class schedules, capacity, attendees, studio information, and location details.

The attendance prediction model will use a combination of time-series forecasting and regression analysis to provide accurate attendance forecasts. Machine Learning techniques such as LSTM and gradient boosting will be evaluated for this purpose.

The Class Attendance Forecasting System's benefit for the end users:

1. Businesses:
 - a. Studio managers will have better schedules, which means more people will be able to attend classes and make better use of resources, leading to more profit.
 - b. Instructors will also benefit with improved schedules, possibly getting better hours and class sizes, making their jobs more satisfying.
2. Clients:
 - a. For clients, there will be more class options during busy times, making them happier and more likely to stay with ClassPass.

This data-driven approach will help enhance operational efficiency and customer satisfaction.