

# **GolfCask Recommender System**

## **Analyzing Recommender Systems in Social Media**

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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## Introduction

Throughout both of their histories, golf and whiskey have had a cultural connection and have influenced each other's development. This connection can be traced back to 1858, when a member of the St. Andrews Golf Course created the legend that the reason a golf course is 18 holes is that when the Scotch were inventing golf, they would take a shot of scotch every hole, and it took 18 shots to finish a standard bottle of scotch (Wiehebrink, n.d.). While no one can be sure if this legend is true, its existence is part of a long story connecting the game and drink.

In recent years, both golf and whiskey have been very popular in the US. In 2023, 26.6 million Americans played on a golf course, 18.4 million participated in some form of off-course golf, and 123 million consumed golf related content, such as tournament broadcasts or social media pages (Vanslette, 2024). These numbers are in part thanks to a 25% increase in the percentage of golfers who were female, and a 43% increase in the percentage of golfers who are ethnic minorities. In recent years, golf media companies have been sprouting up to capitalize on this popularity. In 2024, Chad Mumm, an executive producer from the Netflix show “Full Swing”, founded a golf media venture, “Pro Shop”, which raised 20 million dollars in its first round of funding (Weprin, 2024). Whiskey is also extremely popular, Forbes predicts that the global whiskey market will reach \$127 billion by 2028, growing at a rate of 6.3% a year (Dingwall, 2023).

Brian Bailie, a golf coach and whiskey aficionado, has always wanted to turn his passions into a business. In 2023, he noticed the continued growth of golf and whiskey, and of social media centered around one or the other. He also noticed that while there

were so many new forms of golf and whiskey media, there weren't any companies that combined the two. This surprised Brian because he was familiar with the storied history connecting golf and whiskey, so he decided to do something about it. Brian and his business partner, Gareth McShea, worked with developers to create the website GolfCask, a hub for all things golf and whiskey. To populate the website with content, Brian began creating short-form videos on whiskey reviews, tasting techniques, and golf rounds. While the platform gained members, the content was mainly his own. Realizing the need for a more engaged community, Brian acknowledged the effort this would require and enlisted help.

Brian enlisted the help of the capstone team, and the first few meetings were spent identifying a vision for the site and discussing how to implement it. A decision was made to add a social feed to the site, where users can make or reply to posts and connect with each other. A crucial part of this vision was a recommender system, an algorithm that uses user data to make suggestions to users, such as the "Recommended for you" section on Netflix. The technical project will involve researching and implementing a system that collects user data and uses it to determine the whiskeys and golf courses that any specific user would be most likely to enjoy. The thesis will examine how recommender systems, specifically those that determine what users see on their social media feed, shape social realities.

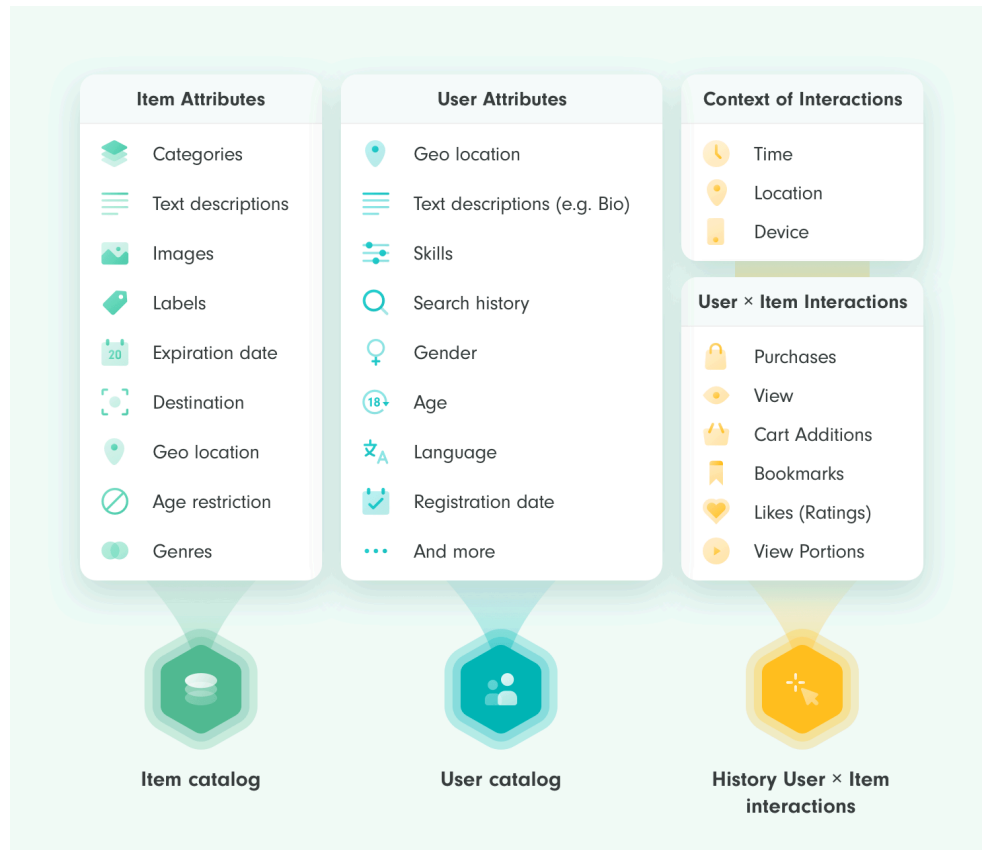
## **Technical**

The technical part of the capstone involves implementing recommender systems for both golf courses and whiskeys. In general, recommender systems act as

information filtering tools, offering users suitable and personalized content or information (Roy & Dutta, 2022). This can be as simple as an online store allowing users to filter their searches for price and size, but the research was focused on the more complicated algorithm-driven recommender systems. There are two main methods for this type of system, one is collaborative filtering, which identifies users with similar tastes and recommends items that one user enjoyed to a similar user who has not seen it. The other is content-based filtering, where items are described using keywords, and a user profile is created to express the kind of item this user likes (Maruti, 2021). Both of these methods require large amounts of data that typically fall into one of three categories: user catalog, item catalog, and history of user x item interactions (Kordik, 2024). The types and amount of data collected will determine the effectiveness of a recommender system. Below is a figure outlining types of data that could be included in these categories.

**Figure 1**

*Categories of data used by recommender systems. (Kordik, 2024)*



To help users identify whiskeys they might like, the recommender system will use content-based. The item catalog will be populated with the name, type, country of origin, age, and alcohol by volume of many whiskeys. Users will have the ability to post whiskey tastings, which will ask for tasting notes, providing the keywords for each item, and a rating, populating the user profile. A similar system is outlined by the creator of WhiskeyMapper.com.

WhiskeyMapper.com is a website created by K. Mesmer that allows users to input a whiskey and receive a list of similar tasting whiskeys. Data for this was collected by scraping reviews of different whiskeys on Reddit and finding the best descriptive

words (Shasty, 2018). The frequency of each word was counted and were averaged to then calculate cosine similarity between whiskeys (Mesmer, 2019). “Cosine similarity is a measure of similarity between two vectors in an inner product space. ... Cosine similarity is commonly used in text analysis to measure the similarity between documents based on the frequency of words or phrases they contain” (Han, Kamber, & Pei, 2012, p.xxx). After creating user profiles, the system will use the concept of cosine similarity to identify whiskeys that have tasting notes similar to those that they enjoy. This will help users find whiskeys they may enjoy, driving traffic to the site and increasing engagement. The system will be an improvement on WhiskeyMapper.com, as it makes recommendations based on multiple whiskeys and the users rating of each, as opposed to simply identifying whiskeys similar to one whiskey.

Social media sites like Twitter and Instagram use recommender systems in their feeds to determine what post to next show the user. Social media has become integral to how people communicate, and has completely changed our social reality. Recommender systems have control over what users see, and therefore have enormous control over how people communicate. It is important to analyze the relationships between users and these algorithms, as this controls what our online social world looks like.

## **STS**

Social Media has changed the world. In 2019, there were 3.2 billion social media users globally, representing 42% of the Earth’s population (Mohsin, 2023). In the US, in 2019, 72% of American adults use some sort of social media (Maryville, 2020). Social

media has connected the world and allows people who never would meet to become friends, but it is not without its drawbacks. A study done at Michigan state university, split 239 undergraduates into two groups, those that frequently consumed media such as social media and video games, and those who did not. Researchers found that those who frequently consumed media had a 42% increase in self-reported anxiety symptoms (McClean 2024). Another study, done in 2018 at the University of Pennsylvania, took 143 undergraduates and split them into two groups. The first group was told to limit their social media use to 10 minutes per platform per day, and the second was told to continue their social media use as normal. All of these students took a survey meant to assess their feelings of anxiety, FOMO, depression, and loneliness, both at the start of the experiment and after 3 weeks of their prescribed social media use. After 3 weeks, the group with limited use showed significant reductions in loneliness and depression, according to differences in their answers (McClean 2024). It is clear that social media use can have strong effects on users' mental health, and these effects are usually negative. The relationships between users and social media completely shape the social reality online. The fact that most of these relationships are harmful means it is very important to analyze them and identify how different groups interact with social media.

In 2015, a study conducted by Professor Dr. Joanne Davila at Stony Brook University identified a group of teenage girls who were at a higher risk of depression and anxiety due to their excessive facebook usage. Researchers monitored this group for a year and found that users who frequently discussed their problems through social media experienced higher levels of anxiety than those who did not (Amedie, 2015). It is

clear that how users use social media influences how it affects their mental health, and another example of this is media-multitasking. Psychologist Dr. Mark Becker performed a study in which 319 undergraduates completed surveys about their mental health and how often they “media-multitask”, consuming multiple forms of media at once. Researchers found those that reported a high level of media-multitasking had 70% increase in self-reported depression symptoms by recommender systems are

In the Actor Network Theory (Latour, 1992) both human and non-human entities are treated as actors capable of influencing a system. Prescription refers to how non-human actors impose rules or behaviors on human users. The “prescription” put in place by recommender systems is very literal, when users are on the “explore” or “for you” section of their social media feed these algorithms control the content that they’re viewing. Translation refers to the process of actors adjusting their goals in order to maintain the system. This occurs with recommender systems trying to predict the users interests, and users either pushing back or being receptive.

## **Research Question and Methods**

Researchers have identified that frequent social media use is associated with poor psychological functioning among children. Based on data from the 2013 Ontario Student Drug Use and Health Survey, researchers concluded that students that used social media for more than 2 hours a day were more likely to have a poor self-rating of their mental health and more likely to have high levels of psychological distress (Sampasa-Kanyinga, 2015). This data has lead me to the question:



How do recommender systems contribute to the mental health effects that social media has on young people? I plan to analyze social media's effect on young people using ANT, focusing on prescription and translation. I will find scholarly research on how platforms prescribe behaviors through the content they serve users, and how this affects users' mental health. I will also research how user behaviors influence the goals and actions of recommender systems.

## **Conclusion**

For GolfCask to grow, it needs to attract users and keep them engaged. Implementing a whiskey recommender system will benefit users and keep them coming back. Understanding recommender systems, while challenging, will be beneficial not only to this goal but also to analyzing the negative mental health effects that social media has. Social media has negative mental health effects on everybody, especially children, and these sites are controlled by recommender systems. Learning how to have a better relationship with social media would be beneficial to the mental well being of everyone online. I believe that through my research I will find that algorithms meant to drive engagement are contributing to these negative effects, mostly due to the fact that they keep users online for longer.

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