1. Introduction

The retail industry took a distinguished turn with the flourish of online shopping. With the speed and convenience of online retail, it has become easier for consumers to get what they want when they want it. Moreover, due to the influence of COVID-19, people are more inclined to online shopping recently. However, the online shopping industry can be cutthroat. This is why understanding online shopping statistics is more important now than ever to get ahead of the competition.

* 1. Motivation

Customers will always have great expectations from the brands they are interested in. In this case, providing specific products to different customers must increase the retailers’ competitiveness and the effective recommender systems for filtering a large scale of information becomes necessary. However, the ongoing rapid expansion of online shopping and the diversity of different customers’ interest makes it difficult to conduct. Firstly, the [number of digital buyers worldwide](https://www.statista.com/statistics/251666/number-of-digital-buyers-worldwide/) keeps climbing every year. In 2019, an estimated 1.92 billion people purchased goods or services online. During the same year, [e-retail sales](https://www.statista.com/statistics/379046/worldwide-retail-e-commerce-sales/) surpassed 3.5 trillion U.S. dollars worldwide, and according to the latest calculations, e-commerce growth will accelerate even further in the future[1]. Secondly, customers’ shopping behavior can be affected by different factors such as countries, personal habits, global events, etc. For example, In a world-wide statistics, the top online categories for purchasing are fashion (61%), travel (59%), books and music (49%), IT (47%), and events (45%), but In the Asia Pacific, the most popular online industries are packed groceries (40%), home care (37%), fresh groceries (35%), and video gaming (30%)[2]. More over,  Retail platforms have undergone an unprecedented global traffic increase between January 2019 and June 2020, surpassing even holiday season traffic peaks. Overall, retail websites generated almost 22 billion visits in June 2020, up from 16.07 billion global visits in January 2020. This is of course due to the COVID-19 which has forced millions of people to stay at home in order to stop the spread of the virus[3].

Considering all these factors above, it does make sense to analyze a large scale of data set and extract inspiring advices for nowadays’ recommender systems.

* 1. Objective

Many other academic researches tend to focus on improving the efficiency or capability of recommender system. Based on several topics of CMSC5741, this project aims to present more dimensions in regarding to item recommendations. For instance, what brands they recommend to shoppers, what range of prices’ items shoppers are inclined to buy, when recommendations can be given to shoppers according to their shopping custom, what kind of similar items should be recommended, etc.

Reference: [1]<https://www.statista.com/topics/871/onlineshopping/#dossierSummary__chapter4>

[3]<https://www.statista.com/statistics/1112595/covid-19-impact-retail-e-commerce-site-traffic-global/>

[2]<https://financesonline.com/online-shopping-statistics/>