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**COS221**

**Practical Assignment 5**

**May 2025**

**Task 1: Research**

The expansion of online shopping has surged notably since the COVID-19 pandemic, mainly because of its convenience, variety of products, competitive pricing, and simple price comparison. Consumers buy familiar and daily use products like electronics, clothing items, cosmetics etc. when doing online shopping. Prices on the internet are generally lower than offline due to reduced overhead costs, and buyers can quickly compare deals across outlets. Though there are issues in the likes of a lack of physical contact, trust issues, faulty deliveries, and inadequate personal assistance, internet shopping and physical shopping are evolving to be more towards a blend or hybrid omnichannel model.

In the modern era some of the most prevalent product categories coincide with popular global trends. Currently some of these product categories include the following: Clothing: With phenomena such as fast fashion the clothing industry continues to dominate the e-commerce market with websites such as Shein profiting from this boom. Skincare & Make-up: Fuelled by social media, the trend of using make-up and improving skincare has taken the market by storm with many emulating what they see online. Vitamins and Supplements: Following the COVID-19 pandemic, many have realised the importance of staying healthy and improving nutrition. Arts and crafts materials: Platforms such as Pinterest and Etsy have in recent years promoted creativity and increased the demand for supplies. Technology: Today’s digital and technological market is the biggest is has ever been as a result of the increasing use of technology in everyday

Looking at the online shopping scene, it appears that clothing, electronics alongside with home goods are the dominant product categories. These categories are favoured due to the variety of options and convenience. However, when it comes to using price comparison tools, categories like beauty products, tech gadgets and health supplements are more popular. Consumers compare these products prices before purchasing to save value on their purchases. Also, the pricing of such products varies significantly across retailers compared to other categories. Although luxury items and appliances are not purchased as frequently as the above-mentioned products, they remain popular in price comparison tools due to their heavy cost. The demand for specific product categories depends also on the current season and the state of the market.

The user experience (UX) is a vital part of the success of an e-commerce site. A well designed UX instils trust on the website from users and can boost the performance of the site as well. Trust in a website influence if a user will spend time or money on the website. 40% of users will stop using a website if it takes more than 3 seconds to load, 39% of users’ engagement will fade if images don’t load or load too slow and 88% of users are less inclined to re-use a site after a bad experience. According to Baymard’s research, bad UX design at the checkout process leads 18% of users not to trust the sites with their credit card information.

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**Task 2: (E)ER-Diagram**

**1st iteration:**

**Assumptions:**

**Task 3: (E)ER-Diagram to Relational Mapping**

**Task 4: Relational Schema**

**Task 5: Web-based Application**

**Task 6: Web**

**Task 7: Analyse and Optimise**

**Task 8: Development**

**Task 9: Demo**

**Task 10: Bonus**