Xi'an Jiaotong-Liverpool University

西交利物浦大學

PAPER CODE	EXAMINER	DEPARTMENT	TEL
CSE308		**Computer Science and Software Engineering**	

2nd SEMESTER 2019/20 OPEN BOOK EXAMINATIONS

BACHELOR DEGREE – Year 4

TECHNOLOGIES FOR E-COMMERCE

TIME ALLOWED: THREE HOURS

READ THE FOLLOWING CAREFULLY:

1. There are **4** questions with different marks with a total of 100 marks. The numbers in brackets at the end of the question indicate the marks for that question.

2. You can use any reference you can find including search Internet. You cannot discuss with other students in any form.

3. All answer booklets will go through a similarity check. If there are same or similar sentences within two booklets, BOTH will be counted as Zero.

4. You can write you answer in MS word, or PDF.

5. Submission: You have to submit on ICE with TWO files: one is your answer booklet with designed cover and pages provided; the other one is your source PHP code file.

6. Notice the time restrictions and the cut-off time. Once the time is up submission will be closed. We are not accept "networks problems" or any late submission.

Question 1 - E-commerce foundation (20)

Explore and examine English Taobao e-commerce website (   ).
Answer the following questions:

1. Describe how the Taobao website utilizes the eight unique features of e-commerce technology that were described in lecture 2. (5)

2. Discuss the features that are implemented well, and the features that are implemented poorly by the Taobao website. (5)

3. Briefly describe Taobao payment methods and the possible security and privacy concerns from customer point of view. (5)

4. Prepare a short memo to the president of the company, detailing your findings and any suggestions for improvement you may have. (5)

Question 2 – Development Technology (30)

Following our practical exercise on e-commerce solution development, you have developed parts of the "M-DEV-Store" for users account management or store administration functions. However, in your own development the search function was left empty. Now **using your own development environment** (one suggested in our lab was Brackets, you can use EditPlus or Eclipse) write a single php file (results.php) to utilize the search function on the "M-DEV-Store" website. You can copy and paste an existing top level php file from your development and modify it to utilize the search function and display results.

A sample search.php was built for you and its result can be seen on URL '   ' (you may need VPN connection to University), you are required to do the exactly same and **submit your "results.php" source code in a separate file**.

If you cannot access the provided URL, you could use the following screen captures. Figure 1 is the interface, where the search box is located at the right-up corner of the

website. You can enter "coat" as indicated on the figure 1. Once the search button is clicked, we expect to see a display of the search results as shown in Figure 2.
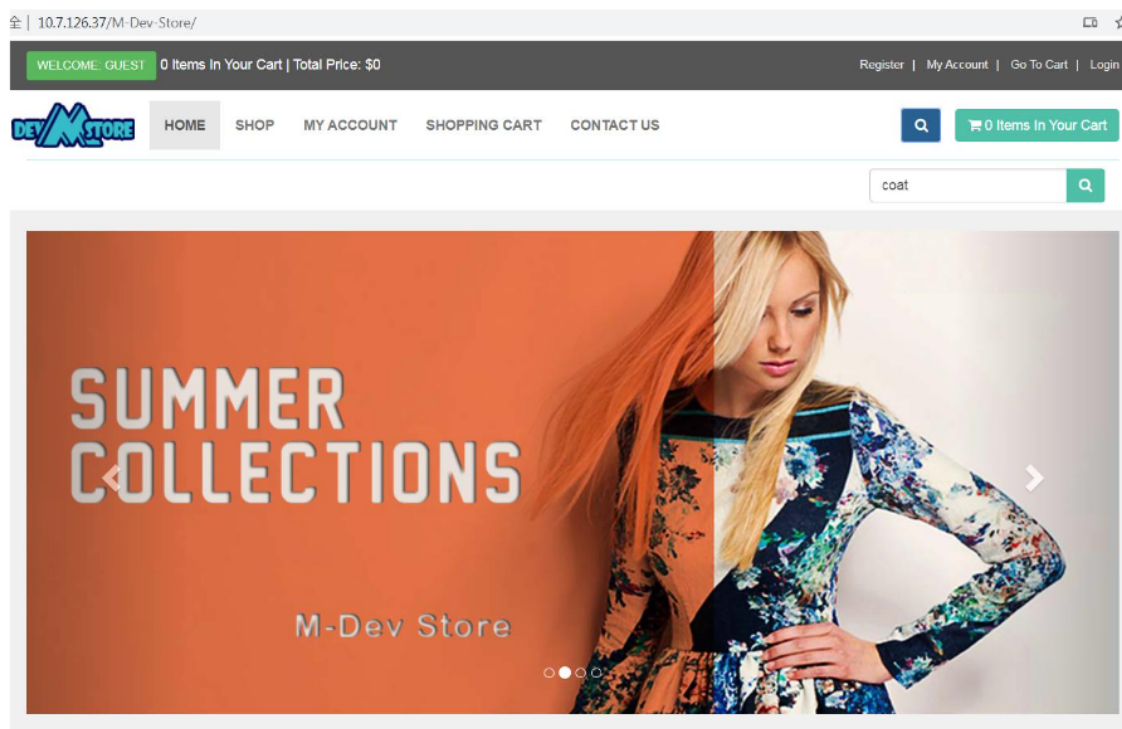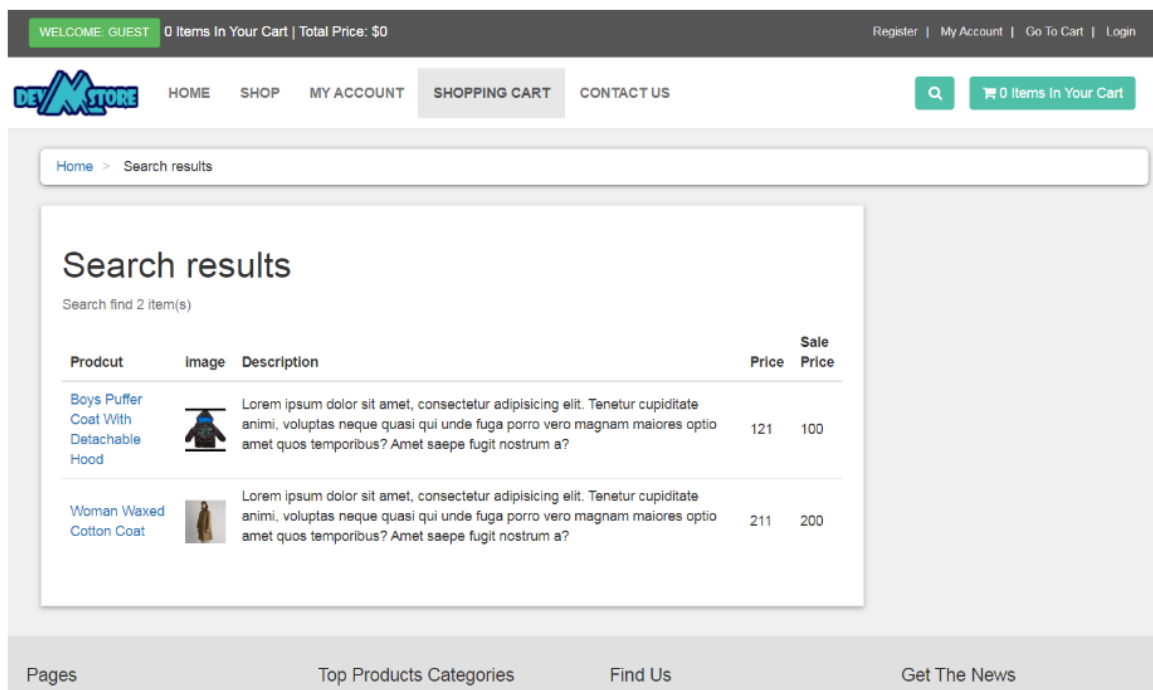

Figure 1. Search box interface in "M-Dev-Store"

Figure 2. Search results of "coat"

Question 3 – E-business model (40 marks)

Read the following blog about Pinduoduo and explore Pinduoduo by going to its official website (   ) and watch videos on the website. The same video is also accessible from university site

(   ). Answer the following questions:

1. Identify Pinduoduo's market niche and customers. (5)

2. Draw a flowchart to describe Pinduoduo purchase process (5).

3. Consider Pinduoduo's slogan "together, more savings, more fun", what distinctive features does Pinduoduo utilize? (5)

4. What value does Pinduoduo provide for their subscribing merchants? What value does it provide for their customers? How Pinduoduo itself benefit from this business model? (10)

5. Do a SWOT analysis on Pinduoduo's business model. (15)

Pinduoduo – China's new e-commerce leader

Pinduoduo Slogan.

Founded in 2015, the Chinese e-commerce platform Pinduoduo offers a wide range of products from daily groceries to home appliances. Counting 536.3 million active buyers and 7 billion products sold in the first half of 2019. As market value reaches $29.6 billion, Pinduoduo has emerged as the second most popular e-commerce site in just 4 years. With exponential growth,

the platform's annual active buyers already significantly surpass those shopping on traditional e-commerce giants such as JD and Alibaba. The annual spend per buyer increased by 75% to $219.2/year. This makes Pinduoduo the most profitable e-commerce platform.

Pinduoduo offers products such as clothing, fresh produce, household items and electronics to consumers. When using Pinduoduo, users are presented with two price options for any products, a standard price to buy directly and a discounted price. Discounted prices are unlocked when users form a 'team' of at least two buyers. Pinduoduo's discounts can   ; such heavily discounted prices cater to China's rural and lower-tier cities which have limited disposable income and less brand conscious.

Pinduoduo is particularly popular with women who make up 70% of the user base. They are considered to be responsible for family purchases and more price-sensitive.

The integration of social commerce is key during the Pinduoduo online shopping process and the bigger the shopping 'team', the lower the price of purchase. This interactive function hooks consumers who are motivated by deals, making the platform addictive while gamifying e-commerce. Pinduoduo also offers incentives such as free merchandise, cash rewards for daily users and free delivery, keeping users hooked. If users aren't able to motivate friends, they can join other online users to form a team and buy a product — there are always deals to be had on Pinduoduo and this makes the platform extremely sticky. The social sharing model means users share product information with friends that typically have similar income and consumption preferences. Pinduoduo's unique social approach to e-commerce underpins its rapid growth.

Pinduoduo is also recognized as adopting a consumer-to-manufacturer (C2M) model for retailer.   Pinduoduo supports merchants by bringing large number of customers to them. In addition, it supplies consumer insights and preferences to merchants' R&D to help them tailor-make products for their targeted customers. C2M is essentially evolving traditional manufacturing from an R&D and marketing-driven process into a consumer-driven process.

Pinduoduo's platform is designed to look like a virtual bazaar. Unlike the conventional search model used by global peers, Pinduoduo engages its users with scrollable personalized recommendations (based on an algorithm of their past viewing behavior). There is no obvious search bar in the app and Pinduoduo users don't use the platform to search for an item that they already have in mind, they typically browse for fun. This model replicates the fun of discovery typically associated with offline shopping.

However, Pinduoduo's unique social approach to e-commerce also face some challenges. Over half of Pinduoduo's customers live in tier-3 and tier-4 cities. Compared to consumers in tier-1 and tier-2 cities in China, consumers in lower-tier cities generally demand products with lower price-points. Since Pinduoduo focuses on offering selected popular goods at a bargain price, through its team purchase model, it can generate substantial revenue within a short period of time. In other words, it can combat low margins through large number of team purchase orders. Driven by the higher penetration of mobile devices, social-commerce platforms, as well as better logistics infrastructures in lower-tier cities in recent years, Pinduoduo has been growing very rapidly. Thanks to strong backing from Tencent, users can easily share deals on WeChat platform and easily bring others into the fold. Hence, it can gain high traffic at relatively lower

costs than other e-commerce platforms. Product prices on Pinduoduo are generally much lower than other e-commerce platforms as well as offline retail stores. For merchants, Pinduoduo may be a good channel to sell their off-season products and get rid of excess inventories, but it is not suitable for brand building as it emphasizes on price rather than brand stories and product quality. It is believed that Tencent's investment in Pinduoduo is one of its strategic moves to tap the highly competitive e-commerce market and better compete with Alibaba, especially in lower-tier cities and rural areas. Tencent has a strong hold on Pinduoduo — Pinduoduo users can leverage WeChat and WeChat Mini Programs to spread the deals and pay by WeChat Pay. In response to Tencent's move to tap the lower tier cities, Alibaba launched a new low-end shopping app "Taobao Tejiaban" (Taobao Special/Bargain Edition) in March 2018. The app targets shoppers in lower-tier cities and rural markets, selling products with similar price points as Pinduoduo. Alipay also launched a group-buying function on Alipay's homepage in August. It offers groupbuying deals within limited time, and the deals will be changed regularly. Meanwhile, JD.com's group-buying platform "JD PinGou" is now open to individuals for store opening. Starting from 1 June, individuals with valid ID cards can register and open their store on the platform under the category of "unbranded product".

Pinduoduo also faces other challenges. After Pinduoduo filed for an IPO in the U.S. in July 2018, growing accusations of Pinduoduo selling counterfeits and imitation goods have prompted the government to rein in by investing the company. On 1 August, 2018, the State Administration for Market Regulation (SAMR) said it called for the Shanghai Municipal Administration of Industry and Commerce (SHAIC), as well as other relevant market regulators, to investigate Pinduoduo, which is headquartered in Shanghai. The regulators reportedly would look into issues related to the sale of imitation products and counterfeits.

In response to the counterfeit accusations, on 22 August 2018, Pinduoduo issued an open letter stating that between 2 August and 9 August, it closed 1,128 stores and removed nearly 4.3 million listings from its platform. According to the letter, Pinduoduo has already reported 36 businesses that infringe on copyrights to the Changning District Market Supervision Administration in Shanghai. Pinduoduo said it will continue to report suspected illegal companies to the relevant local market supervisor. It will also upgrade its merchant verification system in the future.

Question 4 – E-commerce marketing and recommendation (10 marks)

Read the following blog about Pandora, Watch the video on Box or You Tube and answer the questions about Pandora's Recommendation System.

1. What sets Pandora's recommendation system apart from other systems that are used by different websites such as Amazon and Netflix? (5)

2. What is the Music Genome Project? How is the musical "genome" mapped? (5)

Box:

YouTube:

Pandora: pioneer of music streaming service

In the increasingly crowded field of streaming music services, Pandora stands out from the pack with a unique recommender system that emphasizes quality over popularity.

Pandora is a music streaming service with around 72 million active listeners and around 6 million paid subscribers. Other online music streaming services such as Spotify, Apple Music, and Amazon Prime Music offer larger selections of music than Pandora does, and Spotify uses a similar freemium business model. Pandora sets itself apart with its recommendation system and its reliance on the Music Genome Project. In most recommendation systems, your browsing and purchasing data is used to generate selections you might like, such as consumer goods on Amazon or movies and TV shows on Netfix. These sites match your patterns to their internal databases to find the subset of other customers similar to you. If that subset of customers tends to like a product or a show that you haven't seen before, it'll be recommended to you. These systems tend to reward popular products and movies, because these items show up more often on most customers' lists.

On Pandora, you type in a song or artist to create a radio station, and by giving a thumbs up or thumbs down to the tracks you hear (or by skipping tracks), you provide Pandora with valuable information on which tracks you like. That's where the Music Genome Project comes in. Pandora calls itself the "custodian" of the project, and is the sole developer and proprietor of the technology, though at one point it licensed the technology to other entities. With sufficient data about your musical preferences, Pandora begins playing music that features similar attributes to tracks you've thumbed-up and avoids music with features you've thumbed-down or skipped. In this way, Pandora is much less about finding popular selections that everybody else likes, and more about finding selections that you specifically will like on their musical merits. Tim Westergren describes one of the guiding principles behind Pandora as finding a way to help the underdog in an industry where attention is concentrated among a small number of hugely popular artists. Its recommendation system does an excellent job of this without compromising users' listening experience. In side-by-side comparisons of online music streaming services, Pandora's reputation is one of musical exploration—it's the site to choose if you're looking for new music and aren't sure where to turn.

THIS IS THE END OF EXAM PAPER