

*IS3106 - Enterprise Systems Interface Design and Development- **Project Report***



Group 06

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1. Introduction

1.1 Idea Description

GamingNexus is a B2B2C online e-commerce application for digital distribution service of video games and other software.

Our platform provides services for third-party publishers to register company accounts through a company management portal. Companies can create entries of their products in our database.

Afterwards, they will be able to update their products with price changes and promotions.

Our platform also provides services for customers to register customer accounts through our mobile application. We provide extensive functionalities of searching and filtering in our application to help the customers find the perfect games for them. Customers can then purchase the game and software of their choice from the third-party companies through our platform.

As for our admin staff at GamingNexus, we have our own admin management portal where we can keep track of all the products that are listed on our application. The portal also provides services such as schedule management where we can schedule meetings for the company. Sales and revenue management is a place where we can analyse the financial situations of the company.

1.2 Value Proposition

GamingNexus aims to be the ultimate online platform for players to purchase games on their mobile phones. The reason that we choose a mobile platform is because mobile ecommerce has been on the rise. Over 1.2 billion people worldwide access the internet from their smartphones.¹ Not only the sheer volume of mobile devices is sky-rocketing, but also the share

¹ Pixel Union Shop. 2019. "22 must-know mobile ecommerce stats for 2020," *Pixel Union*, Pixel Union, December 11 (available at <https://pixelunion.net/blogs/state-of-the-union/mobile-ecommerce-stats>; retrieved May 3, 2020).

of the online population who bought something from the internet.² We aim to attract this huge market of potential customers.

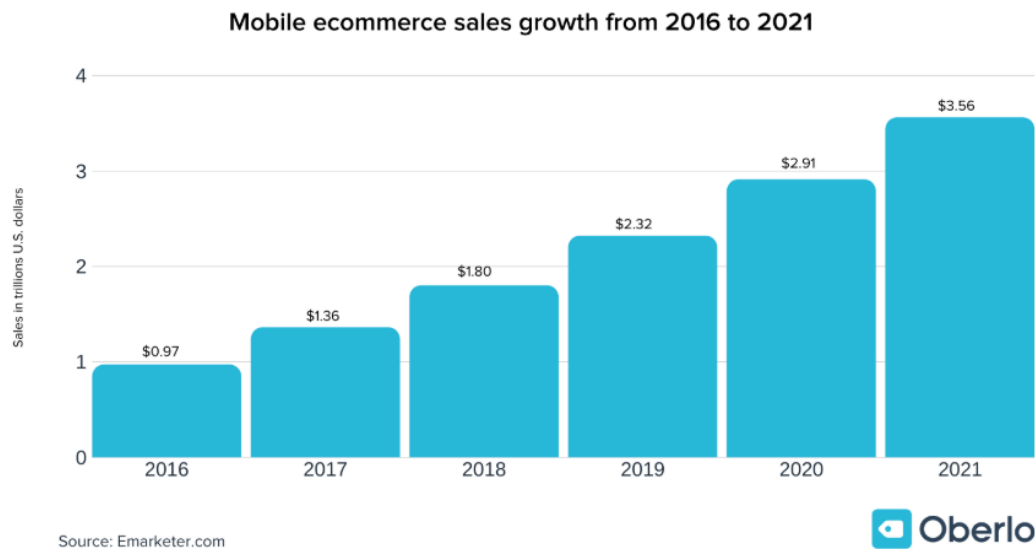


Figure 1 Mobile e-commerce sales growth³

2. Main Business Content

2.1 Revenue Model

GamingNexus has two main streams of revenue.

Firstly, we take a 10 percent cut from third-party companies for every successful transaction.

Secondly, we offer paid advertising on our mobile application. For example, we offer 100 dollars per day for products to be featured on our slider in the home page.

² Clement, J. 2020. "Mobile shopping penetration 2019," *Statista*, February 14 (available at <https://www.statista.com/statistics/280134/online-smartphone-purchases-in-selected-countries/>; retrieved May 3, 2020).

³ "Mobile Commerce Sales in 2020." 2020. *Oberlo*, January 14 (available at <https://www.oberlo.com/statistics/mobile-commerce-sales>; retrieved May 3, 2020).

2.2 Market Opportunity

We believe that GamingNexus has a great market opportunity. Video gaming industry is growing extremely fast. With billions of dollars in profit and over 2.5 billion games around the world, the market is definitely offering ample opportunities.⁴

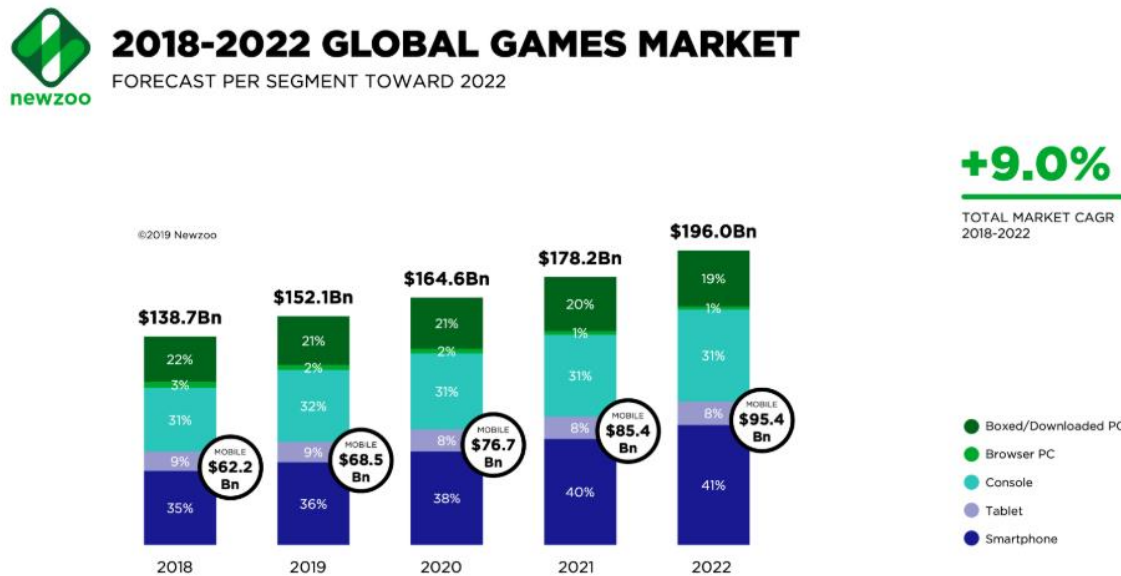


Figure 2 Games market forecast⁵

2.3 Competitive Environment

The current e-commerce market for video games is dominated by a few big players. Steam is the biggest among them all, followed by GOG galaxy, Epic game store, Origin, Uplay and Windows store.⁶ Although the market is quite competitive, we believe that GamingNexus has its own edge over potential competitors.

⁴ Koksai, I. 2019. "Video Gaming Industry & Its Revenue Shift," *Forbes*, Forbes Magazine, November 12 (available at <https://www.forbes.com/sites/ilkerkoksai/2019/11/08/video-gaming-industry--its-revenue-shift/#1c8722db663e>; retrieved May 3, 2020).

⁵ "The Global Games Market Will Generate \$152.1 Billion in 2019 as the U.S. Overtakes China as the Biggest Market." (n.d.). *Newzoo* (available at <https://newzoo.com/insights/articles/the-global-games-market-will-generate-152-1-billion-in-2019-as-the-u-s-overtakes-china-as-the-biggest-market/>; retrieved May 3, 2020).

⁶ Prescott, S. 2019. "The most popular desktop gaming clients, ranked," *pcgamer*, PC Gamer, July 5 (available at <https://www.pcgamer.com/the-most-popular-desktop-gaming-clients-ranked/>; retrieved May 3, 2020).



Figure 3 Current market

2.4 Competitive Edge

For years, steam took a 30 percent cut of every sale that developers made on steam. It only changed the model slightly due to competition from Epic games store which only takes 12 percent revenue cut for all sales.⁷ However, GamingNexus is even more competitive than that with a mere 10 percent cut from every transaction. Moreover, although steam does have a mobile version, the more competitive Epic games store does not. Therefore, we believe that GamingNexus is offering the convenience of mobile e-commerce like nobody else in the market. Together with our low pricing strategy, we would gain a competitive edge over potential opponents.

2.5 Marketing and Advertising Strategies

Firstly, GamingNexus will advertise on video games related websites such as liquidpedia.net, onesports.gg and pcgamer.com as our target audiences are likely to frequent these websites for esports and video games related information.

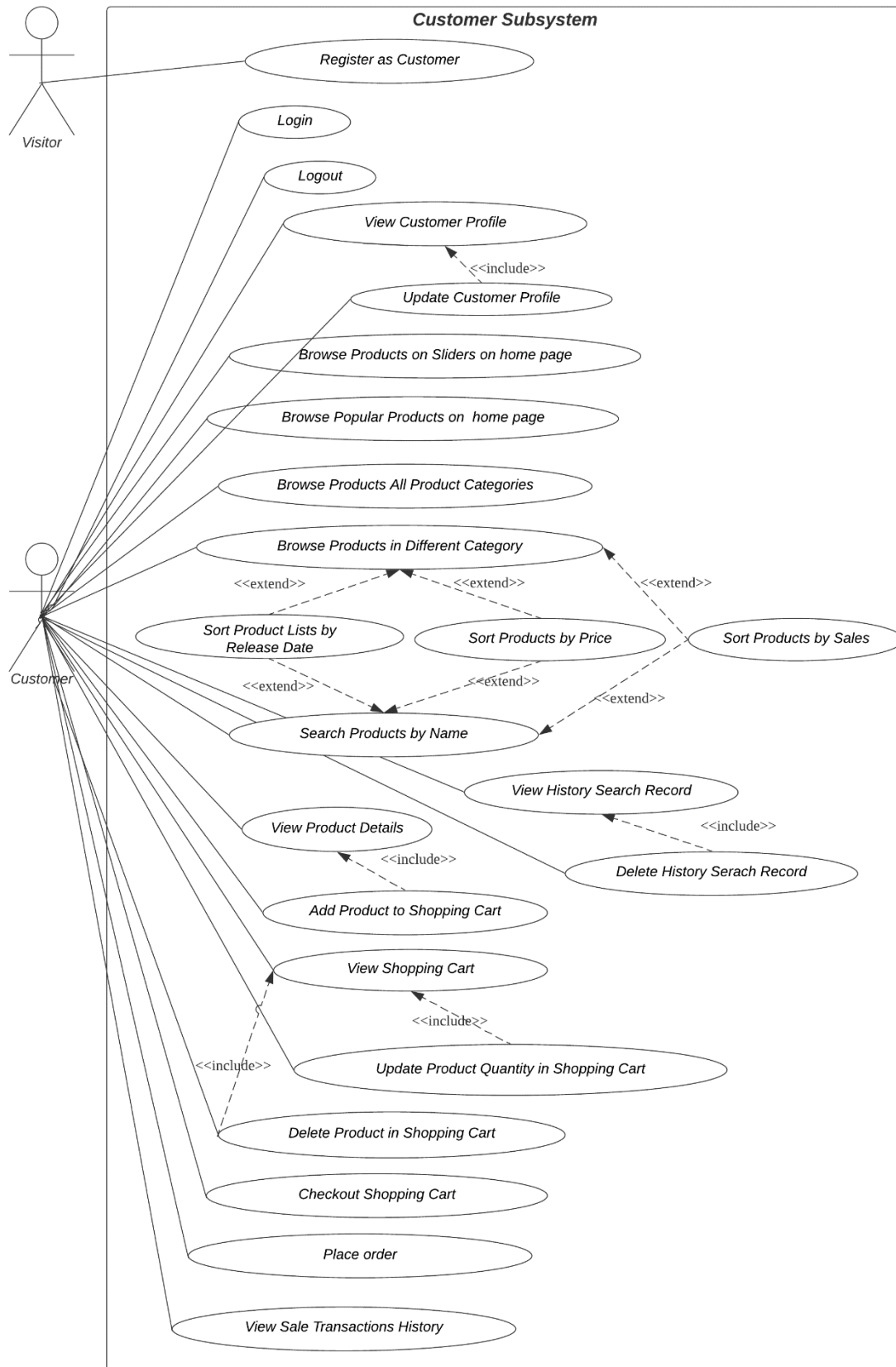
⁷ Grubb, J. 2019. "Ubisoft: Steam's revenue model is 'unrealistic'," *VentureBeat*, VentureBeat, August 31 (available at <https://venturebeat.com/2019/08/28/ubisoft-steams-revenue-model-is-unrealistic/>; retrieved May 3, 2020).

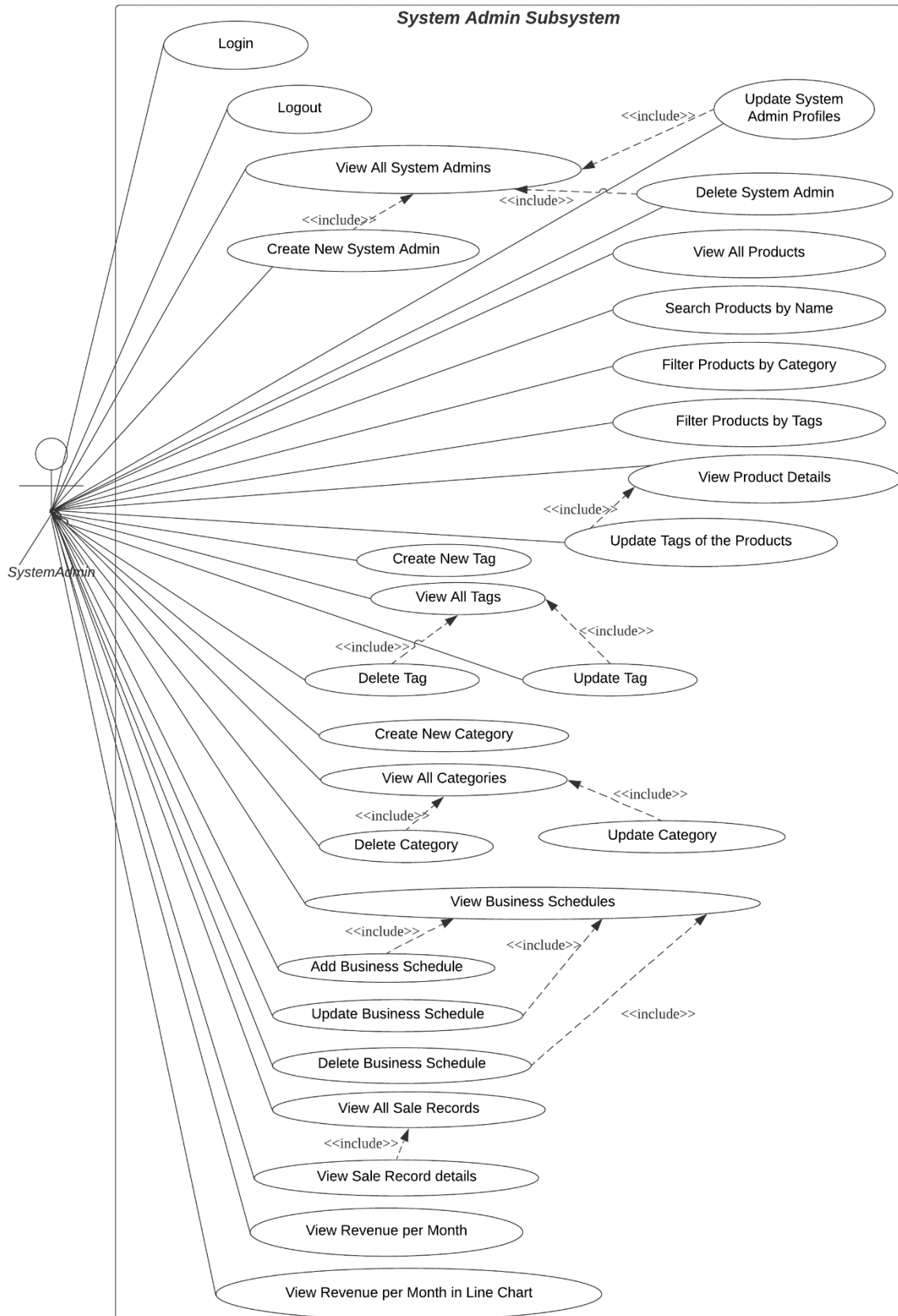
Secondly, GamingNexus will sponsor famous esports organizations such as Team Liquid, Team Fnatic and PSG.LGD Gaming. These esports organizations have many teams in multiple competitive games such as Dota 2, CSGO and League of Legends. These teams have high viewership during esports tournaments which will help our company to promote our application.

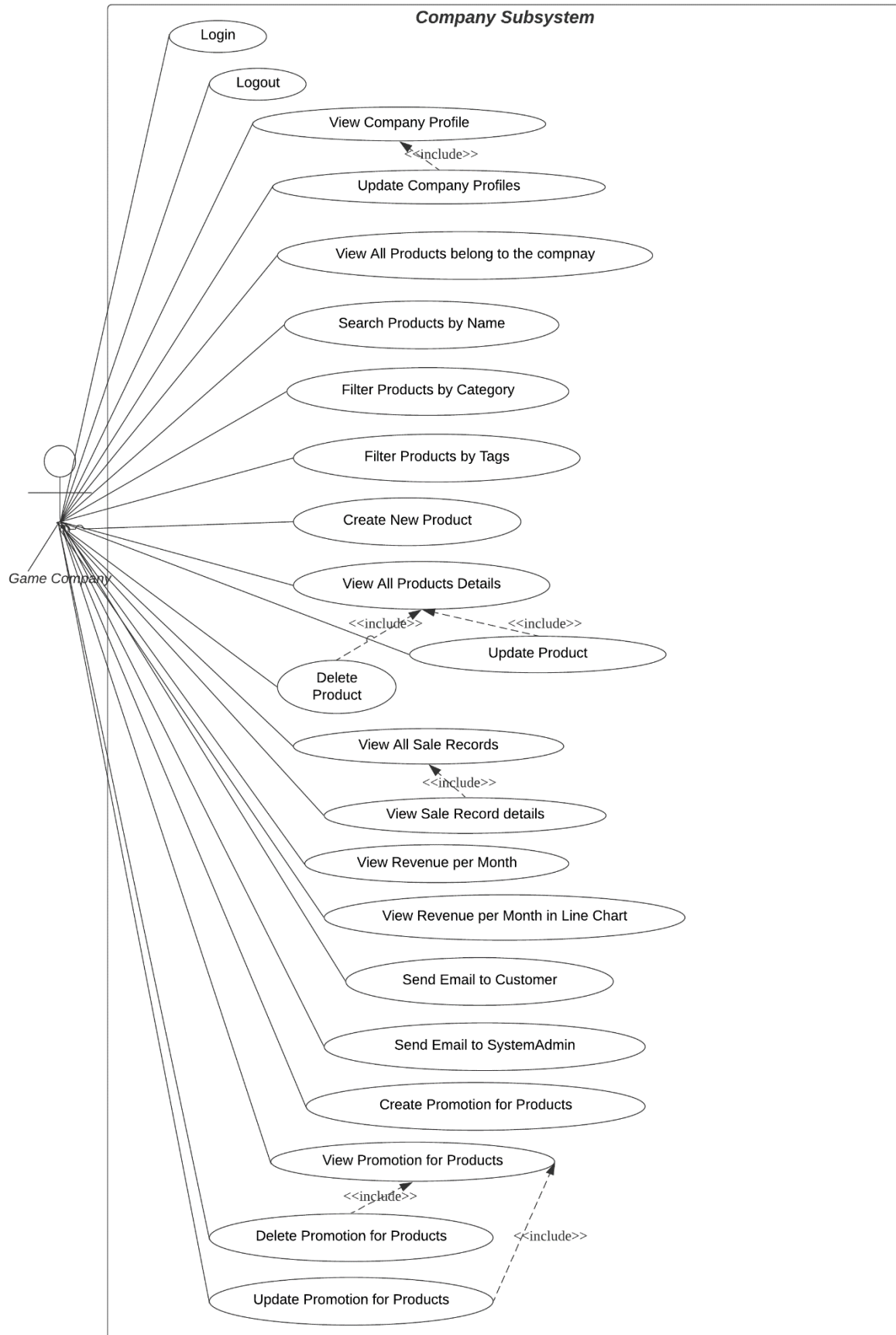
Thirdly, we will collaborate with more third-party companies to put more games and software up on our shelf for sale.

3. Main Technical Content

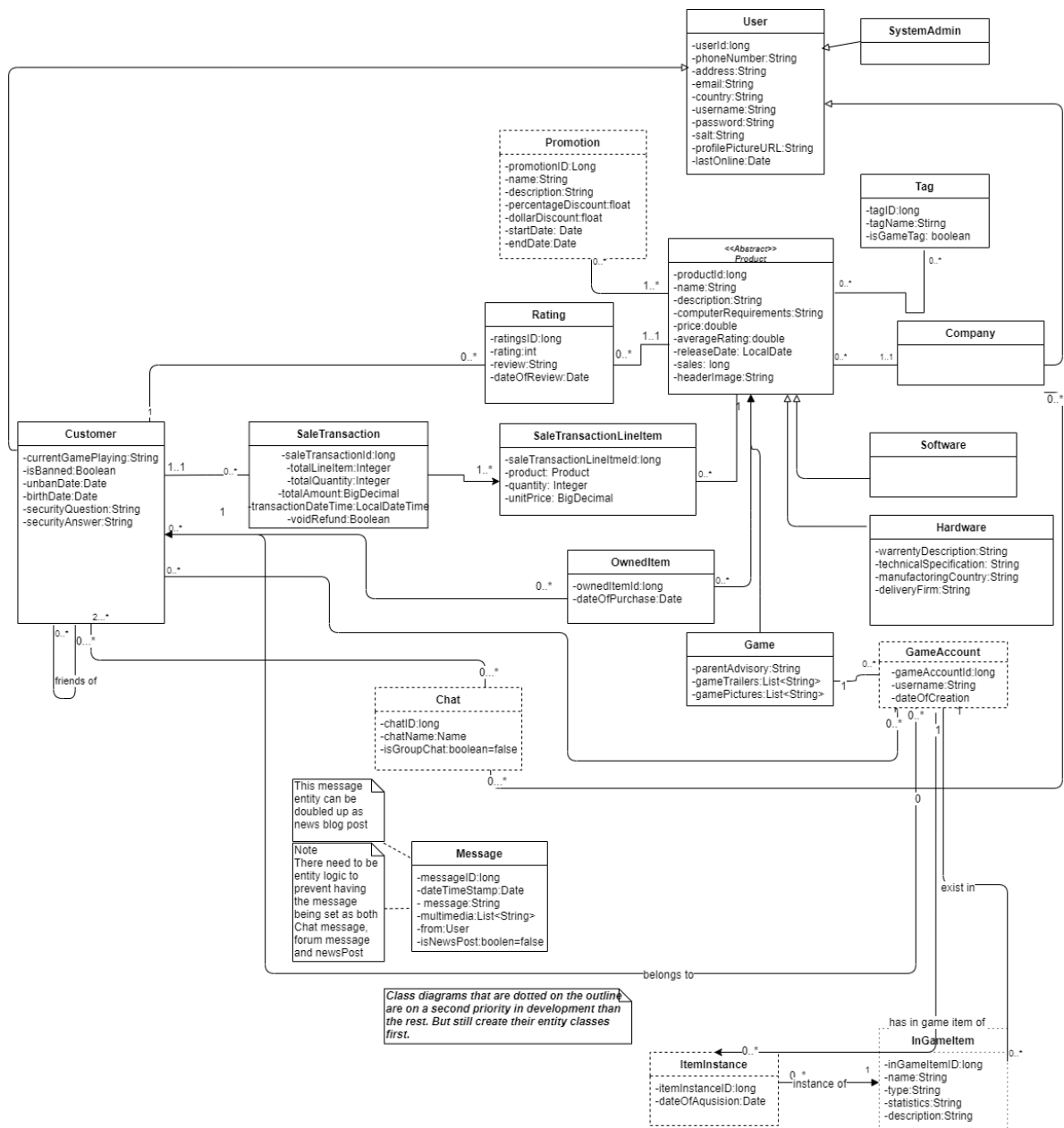
3.1 Use Case Diagram



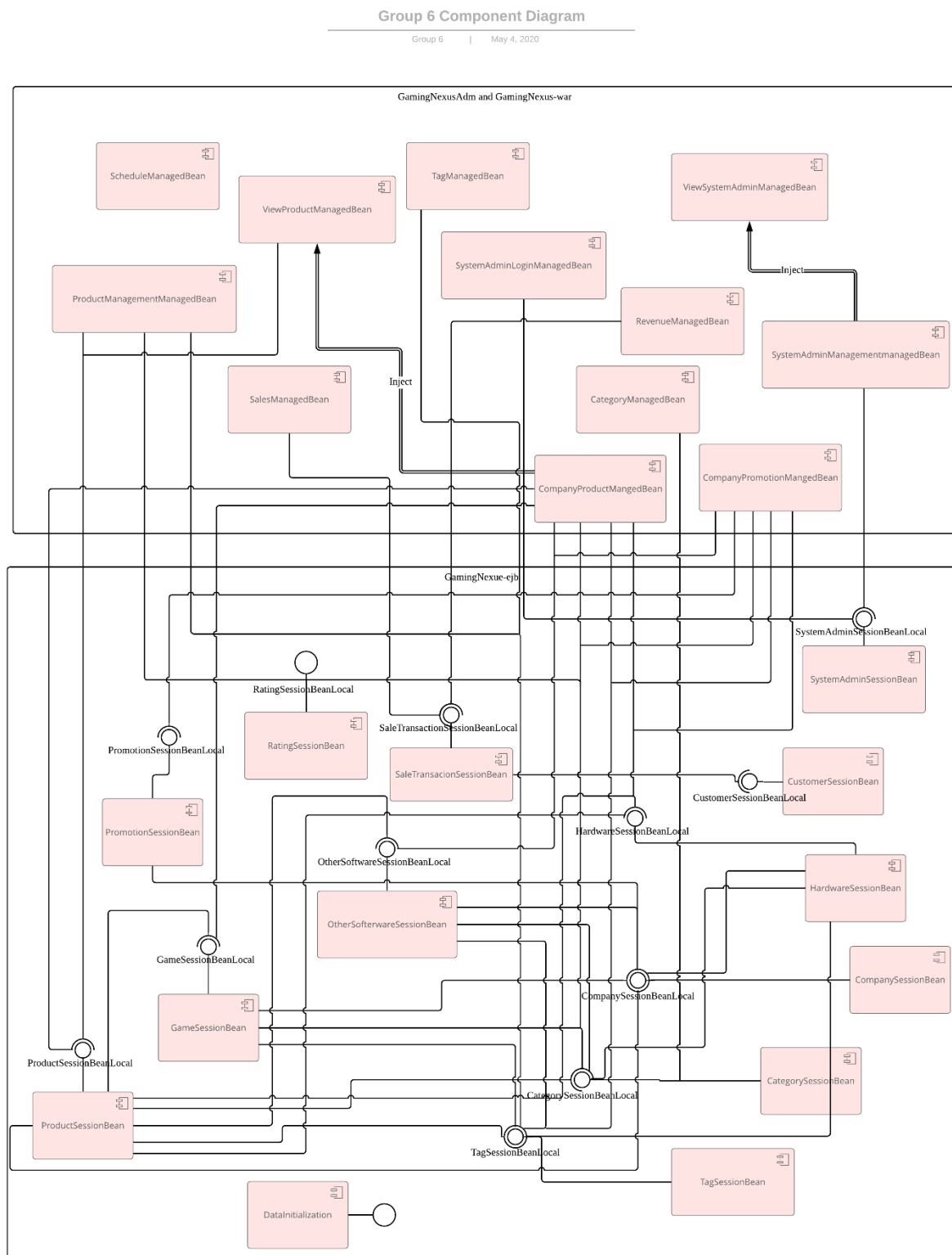




3.2 Class Diagram

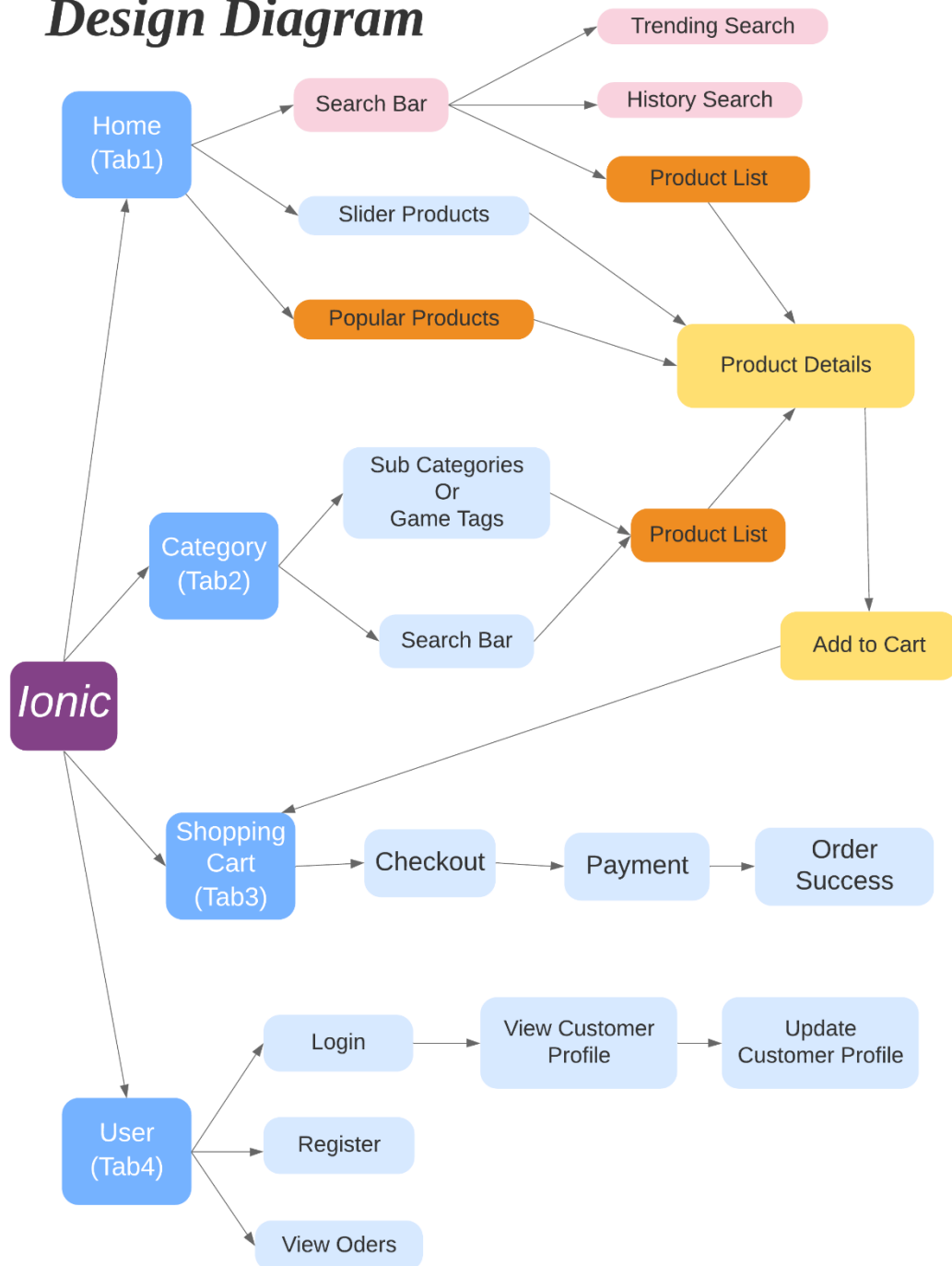


3.3 JSF Component Diagram



3.4 Ionic Component Diagram

Ionic Component Design Diagram



4. Front-end Application JSF

4.1 Prototype description

Our JSF application is built for the admin management of GamingNexus. It aims to be both user-friendly and practical with all the essential functions of what an admin staff would need. Firstly, the JSF application enables admin staff to view all the staff's profiles and update their own profile. Secondly, admin staff can manage the third-party companies and their products. Thirdly, each admin staff has an editable schedule which they can fill with company events and meetings. View sales record page enables the staff to view every sales transaction made. Lastly, a revenue chart displays the GamingNexus' sales revenue by month.

4.2 Screenshots



Figure 4 System Admin Login Page

GamingNexus Admin Control						
Main Menu System Home Logout System Administration AdminManagement ProductManagement ScheduleManagement View Sales Record Revenue Chart	Create					
	(1 of 1) << < 1 > >> 10					
	UserID	Username	Address	Email	Country	Last Online
	1	admin1	addr 1	email@hotmail.com	Singapore	2020-05-03T05:58:19.841
	2	admin2	Kent Ridge	admin2@gmail.com	Singapore	2020-05-03T23:14:37.775
	(1 of 1) << < 1 > >> 10					

Figure 5 Admin Management Page

GamingNexus Admin Control						
Main Menu System Home Logout System Administration AdminManagement ProductManagement ScheduleManagement View Sales Record Revenue Chart	> System Administration > Product Management					
	Product Management					
	Search all fields: Enter keyword					
	(1 of 6) << < 1 2 3 4 5 6 > >> 10					
	Product ID	Name	Category	Price	Sales	Action
			[Select One]			
	1	Counter-Strike	Game	\$510.00	13033334	
	2	Portal	Game	\$510.00	9795716	
	3	Dota 2	Game	\$50.00	90687580	
	4	Team Fortress 2	Game	\$50.00	37878812	
	5	Counter-Strike: Global Offensive	Game	\$515.00	45833156	
	6	Portal 2	Game	\$520.00	8741499	
	7	Day of Defeat	Game	\$55.25	7621102	
	8	Left 4 Dead	Game	\$510.00	4473517	
	9	Left 4 Dead 2	Game	\$510.00	15574539	
	10	DOOM II: Hell on Earth	Game	\$55.00	443890	
	(1 of 6) << < 1 2 3 4 5 6 > >> 10					

Figure 6 Product Management Page

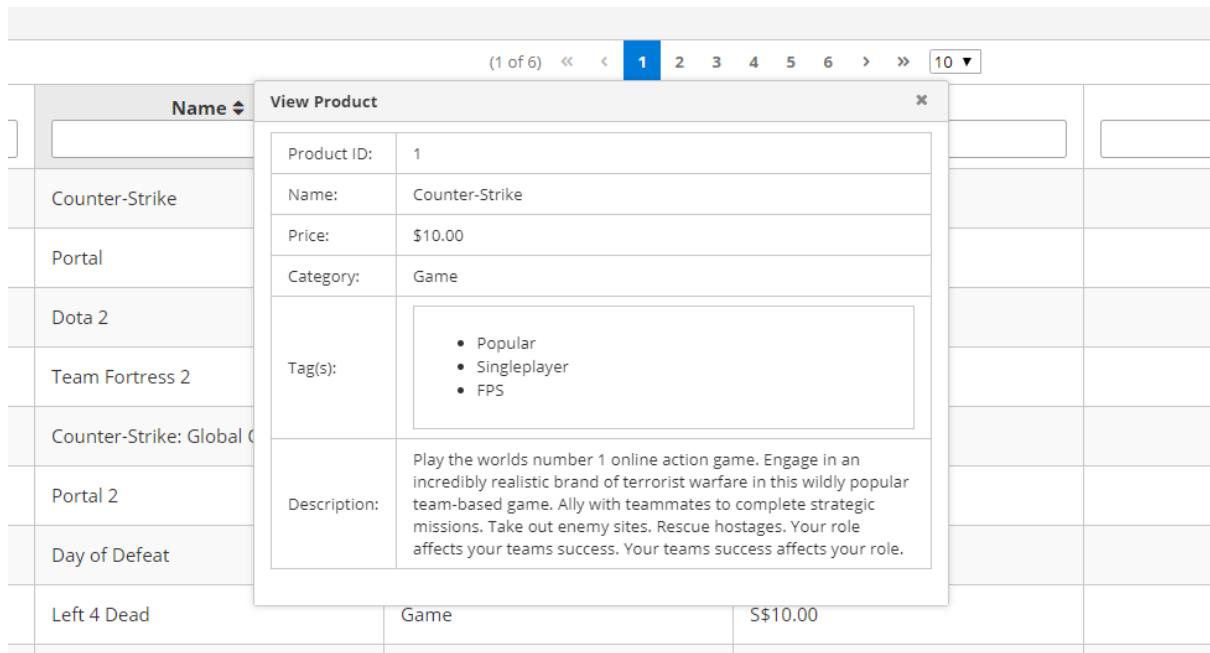


Figure 7 View Product Details Page

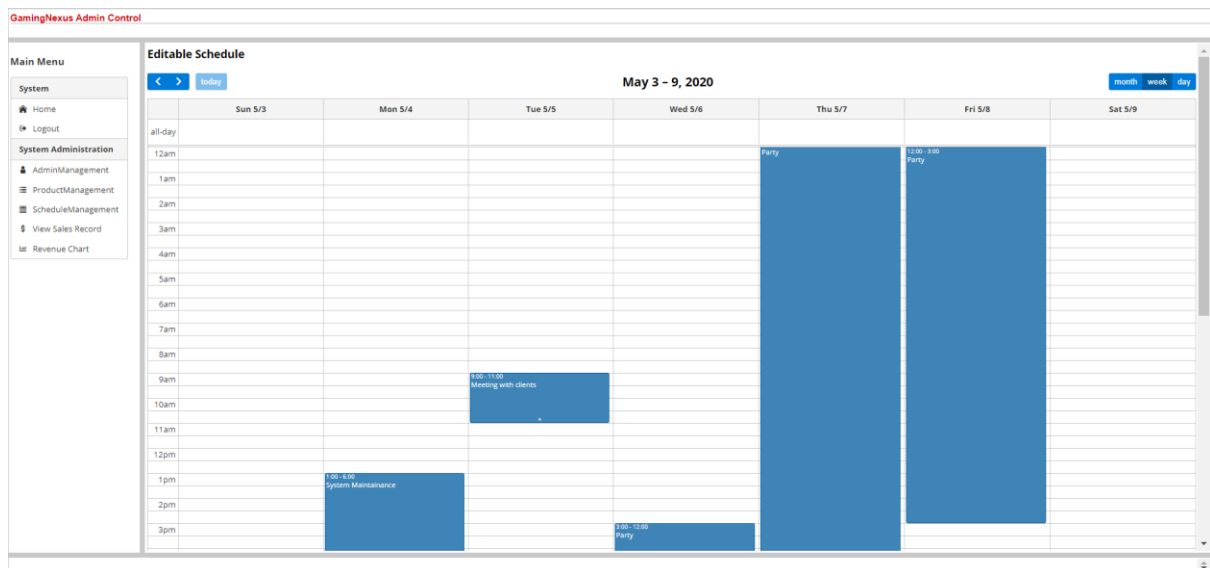


Figure 8 Schedule Management Page

GamingNexus Admin Control

Main Menu

- System
 - Home
 - Logout
- System Administration
 - AdminManagement
 - ProductManagement
 - ScheduleManagement
 - View Sales Record
 - Revenue Chart

Sale Transactions Management

Search all fields:

(1 of 1) << 1 >> 10 ▼

Sale Transaction ID ↕	Total Line Item ↕	Total Quantity ↕	Total Amount ↕	Customer Id ↕	Action
1	1	1	14.50	1	
2	3	3	84.90	1	
3	1	1	40.00	1	
4	1	1	40.00	1	
5	1	2	140.00	1	
6	3	6	278.85	1	

(1 of 1) << 1 >> 10 ▼

Figure 9 View Sales Record Page

(1 of 1) << < 1 > >> 10 ▾

Total Line Item	View Sale Transaction	Customer ID														
	<table> <tr> <td>Sale Transaction ID:</td> <td>2</td> </tr> <tr> <td>Total Line Item:</td> <td>3</td> </tr> <tr> <td>Total Quantity:</td> <td>3</td> </tr> <tr> <td>Total Amount:</td> <td>84.90</td> </tr> <tr> <td>Transaction Date Time:</td> <td>2020-04-03T23:08:42</td> </tr> <tr> <td>Line Items:</td> <td> <ul style="list-style-type: none"> Portal Dota 2 Sid Meier's Civilization VI </td> </tr> <tr> <td>Customer ID:</td> <td>1</td> </tr> </table>	Sale Transaction ID:	2	Total Line Item:	3	Total Quantity:	3	Total Amount:	84.90	Transaction Date Time:	2020-04-03T23:08:42	Line Items:	<ul style="list-style-type: none"> Portal Dota 2 Sid Meier's Civilization VI 	Customer ID:	1	
Sale Transaction ID:	2															
Total Line Item:	3															
Total Quantity:	3															
Total Amount:	84.90															
Transaction Date Time:	2020-04-03T23:08:42															
Line Items:	<ul style="list-style-type: none"> Portal Dota 2 Sid Meier's Civilization VI 															
Customer ID:	1															
		1														
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Figure 10 View Sale Transaction Details

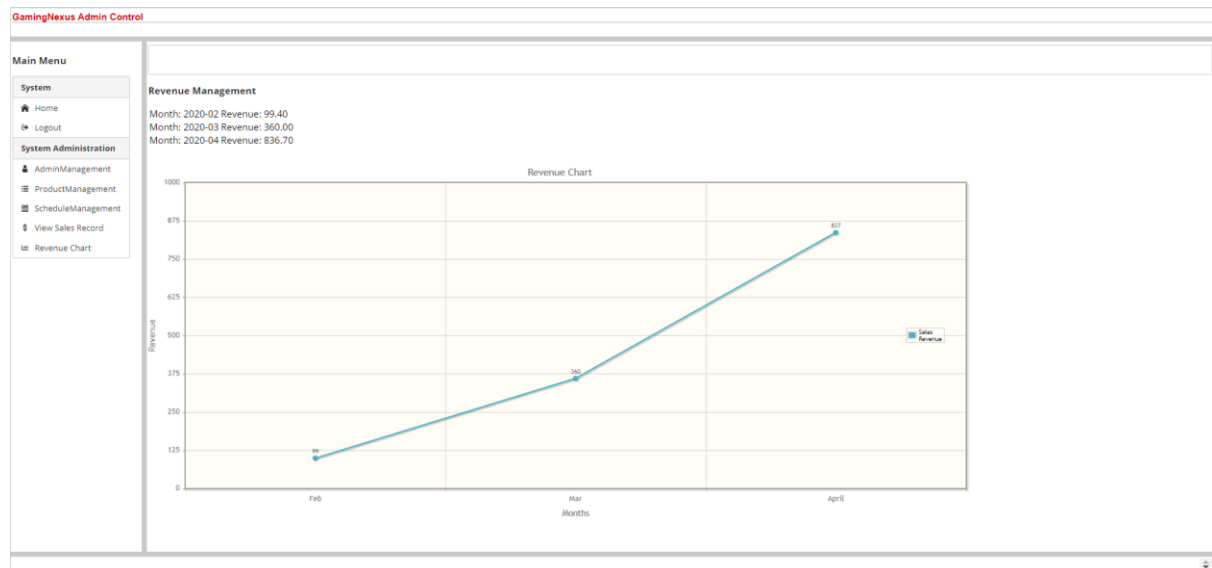


Figure 11 Revenue Page

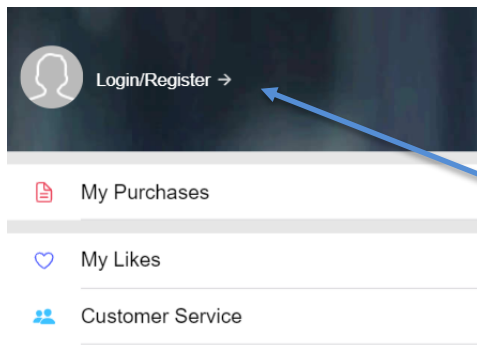
5. Front-end Application Ionic

5.1 Prototype description

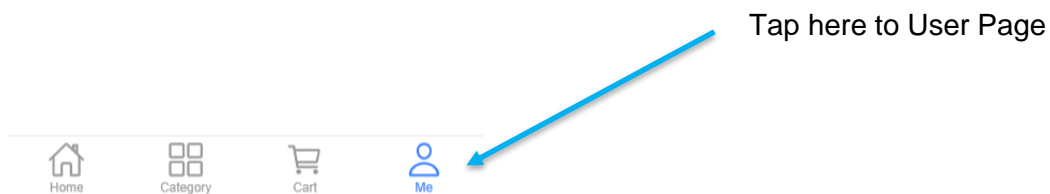
Our Ionic application is built for the customers of GamingNexus. It aims to provide the best shopping experience for our potential customers. Ionic Framework is an open source UI toolkit for building performant, high-quality desktop and mobile apps using web technologies — HTML, CSS, and JavaScript — with integrations for popular frameworks like Angular. Being an HTML framework, Ionic application can be run in a browser very easily, and also can be deployed to a mobile phone.

In our ionic application, a lot of user-friendly interaction design has been used. Extensive search and filter functions have been implemented with a wide variety of categories and tags. This is to provide the best assistance for our customers to find the product of their choice. Moreover, it shows trending and popular products in our system, and records down customer search history to better find out what customer are interested in so that we can improve our algorithm consistently of the backend to recommend products to customer. The system shows detailed information of the product. Having browsed the product that is interested to purchase, customer can add them into the shopping cart and place the order. It is therefore that the Ionic application is specifically tailored for customer by using the latest UX/UI technology and aesthetic design in mobile application to provide customer with a fabulous shopping experience.

5.2 Screenshots



Tap here to login page



Tap here to User Page

User Page

A screenshot of the 'User Page' login and registration form. At the top left is a close button (X). Below it is the 'NEXUS' logo, which features a green and black character. The form has two input fields: 'Username' and 'Password'. Below the 'Password' field is a link for 'Forgot Password'. To the right of the 'Forgot Password' link is a 'Register' link. At the bottom of the form is a large red button labeled 'Login'. A blue arrow points from the right towards the 'Register' link, and another blue arrow points from the right towards the 'Login' button.

Tap here to Register Page

Enter Username & Password
for Customer to login

Login Page

X
Register As A New User

Email *

Username *

Password *

Phone Number *

Gender >

Birthday 2000-01-01 >

Address *

Country *

Register

Clear

Register Page

To register as a new customer to GamingNexus, enter all necessary information and simply tap on register will do.

Proper input validation check has been enforced to ensure data integrity.

ActionSheet and DateTime Picker are used for better User Interaction

X
Register As A New User

Email *

Username *

Password *

Phone Number *

Gender >

Birthday 2000-01-01 >

Gender
Male
Female
Cancel

X
Register As A New User

Email *

Username *

Password *

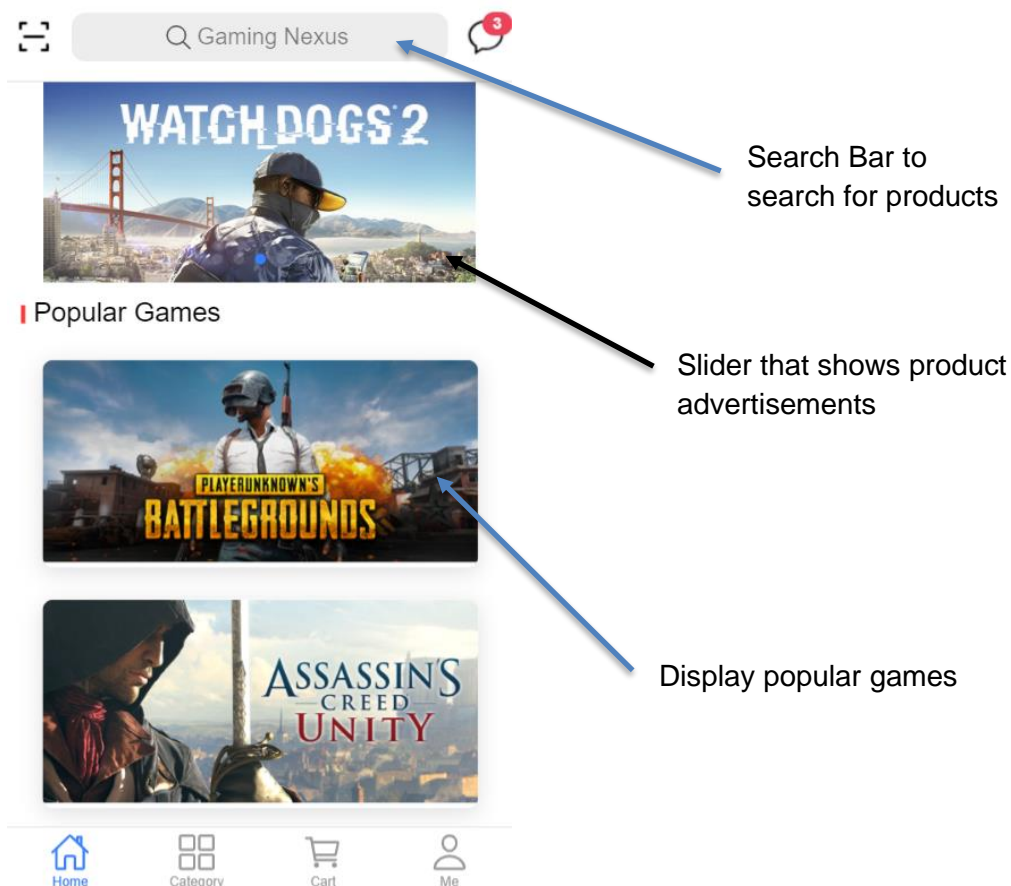
Phone Number *

Gender >

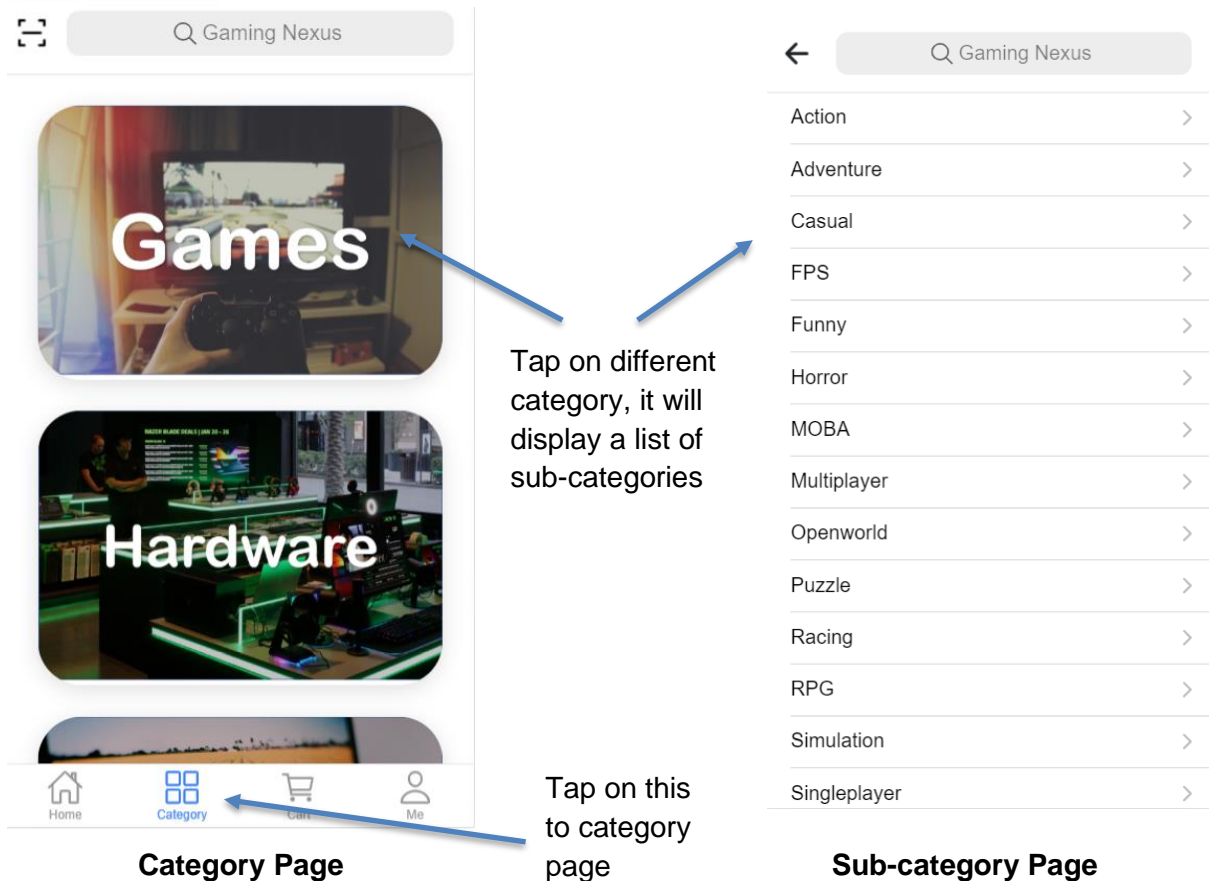
Birthday 2000-01-01 >

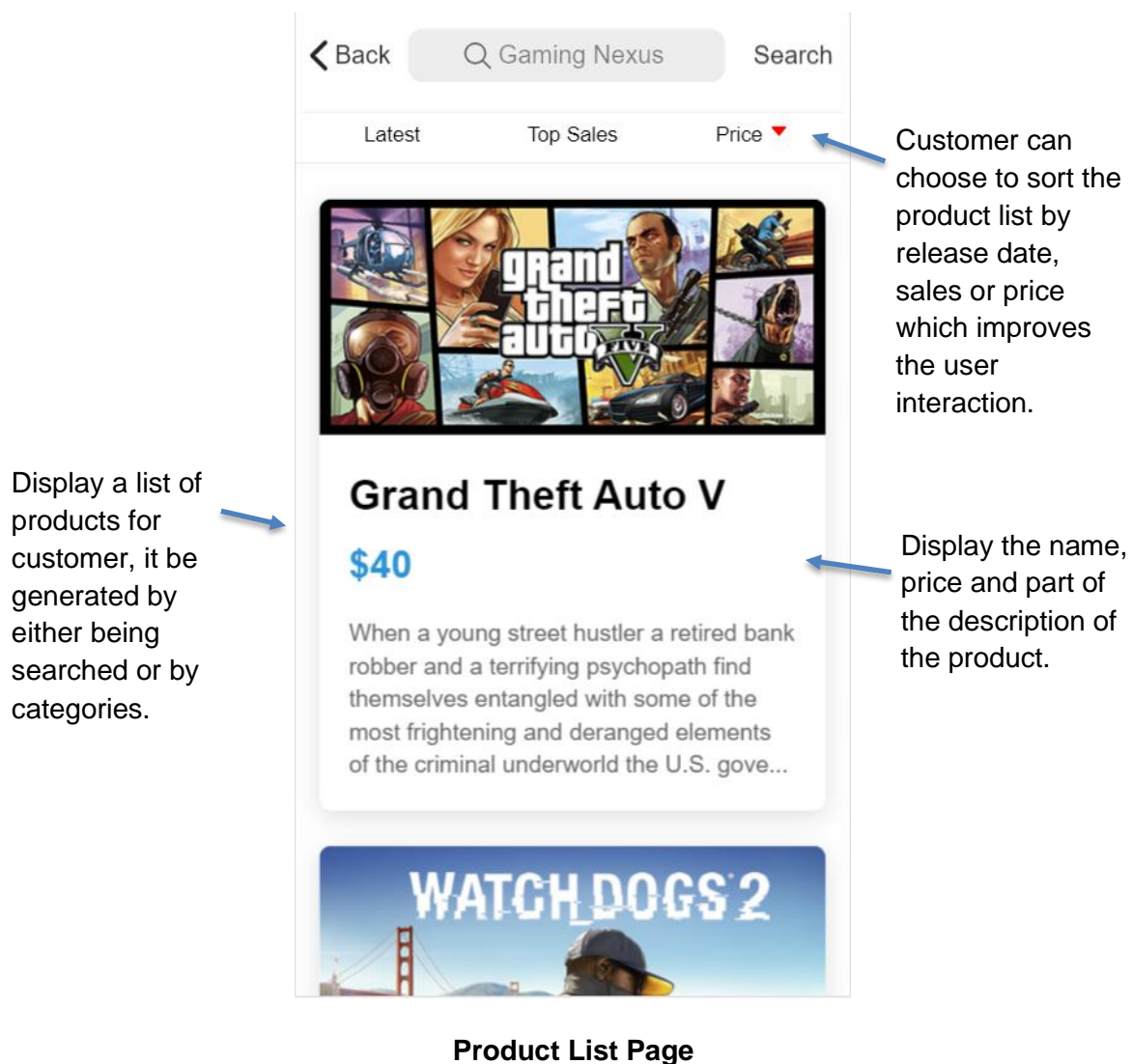
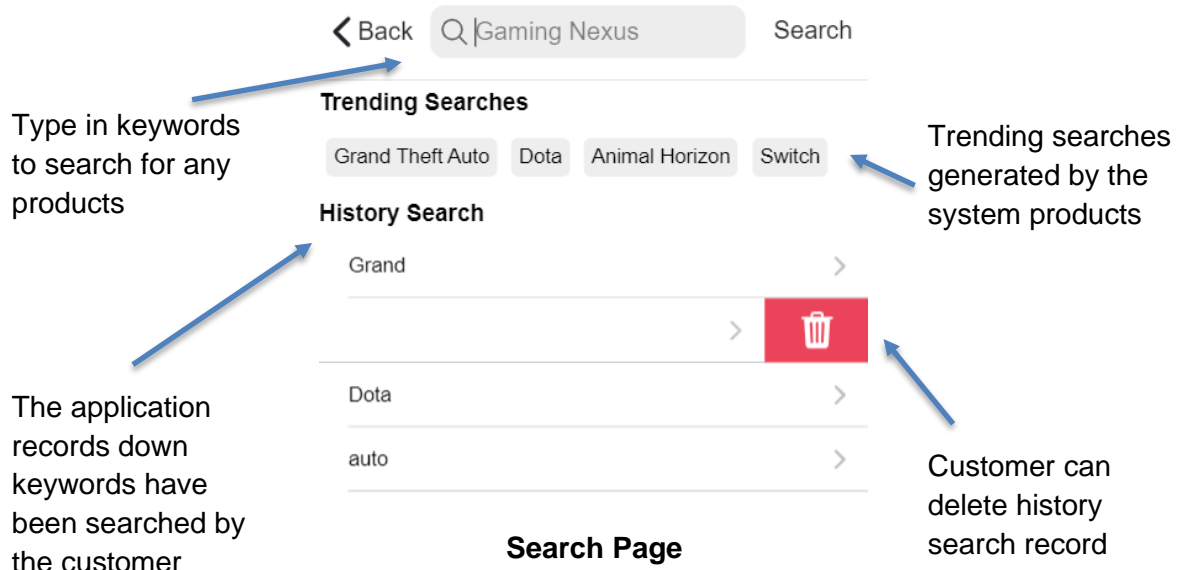
Cancel Done

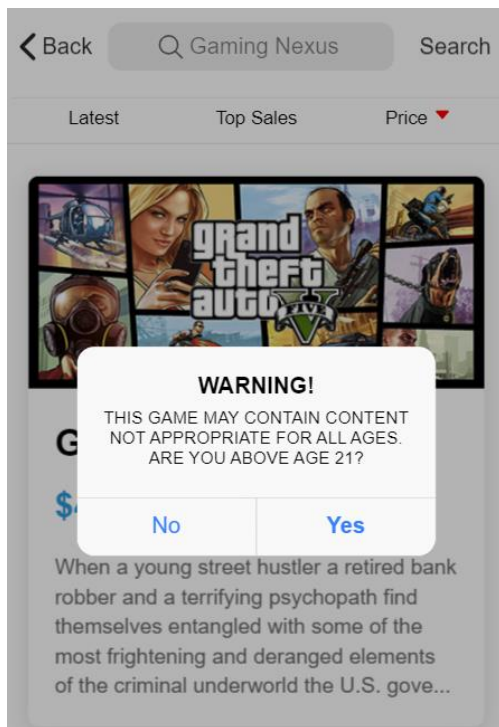
2000 01 01
1999 02 02
1998 03 03
1997 04 04



Home Page



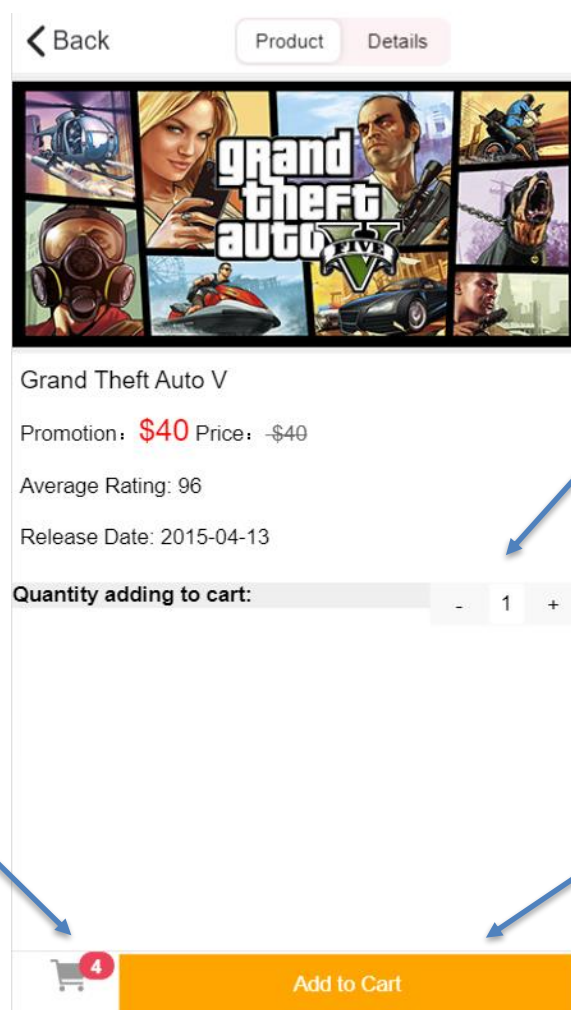




This is the unique feature designed in our system. Some games may contain some content that is not appropriate for all ages. For those games, customer need to confirm their age in order to view the games. Otherwise, the game details will not be shown to them

Parental Advisory Check

A page that shows details information of the product

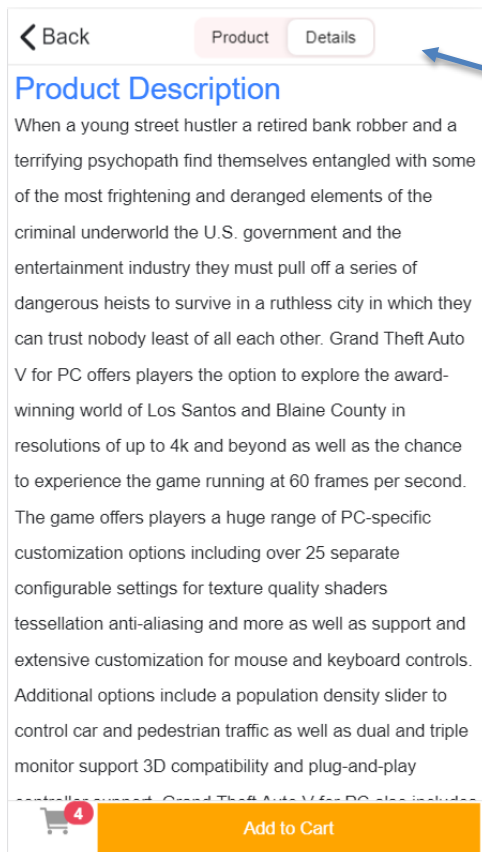


Customer can tap on the button to increase or decrease the number of products to be added into shopping cart

Tap on this to get to the shopping cart. Additionally, the number on top right shows number of items already in the shopping cart

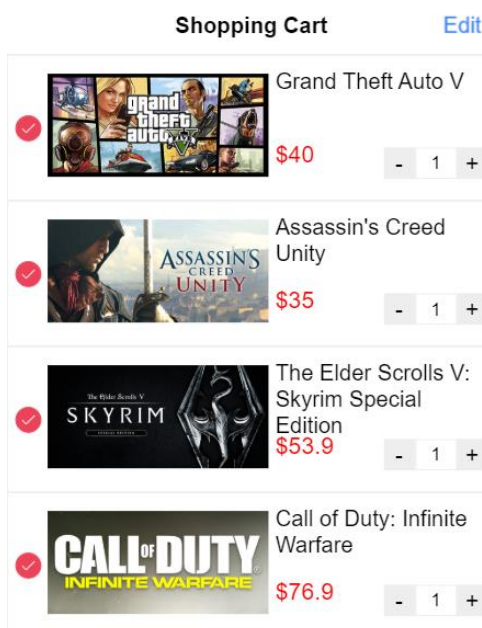
Add this product into shopping cart

Product Details Page



By switching the tab on top, customer can view detailed product description

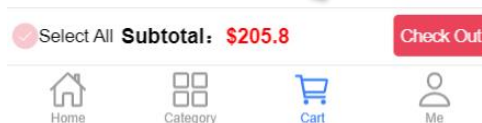
Product Details Page



Tap this to get to edit mode to delete line items in the shopping cart

Tap on this to update quantity of line items in the shopping cart





It shows the total price of selected products in the shopping cart



Tap here to get to checkout page

Shopping Cart Page

Shopping Cart [Cancel](#)

	Grand Theft Auto V	\$40	- 1 +
	Assassin's Creed Unity	\$35	- 1 +
	The Elder Scrolls V: Skyrim Special Edition	\$53.9	- 1 +
	Call of Duty: Infinite Warfare	\$76.9	- 1 +

In the edit mode, customer can choose to delete line items in the shopping cart



☐ Select All [Delete](#)

 Home
  Category
  Cart
  Me


Payment


Address:
Nus Com1 #02-11


List of Products:

	Grand Theft Auto V	\$40x1
	Assassin's Creed Unity	\$35x1

Payment Method:

 Visa ☒

 MasterCard

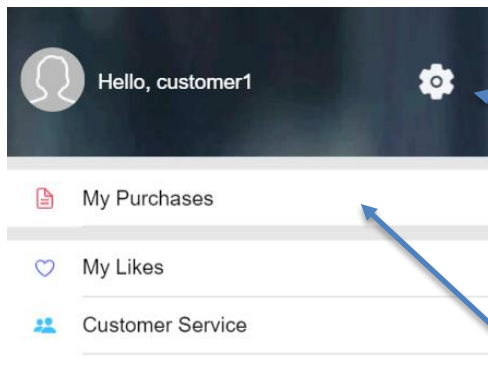
 PayPal

Total Price: \$75 [Order](#)

In this page, customer can review the products that he/she wants to purchase and type in the delivery address and select the payment method.

Tap on Order to create sale transaction record

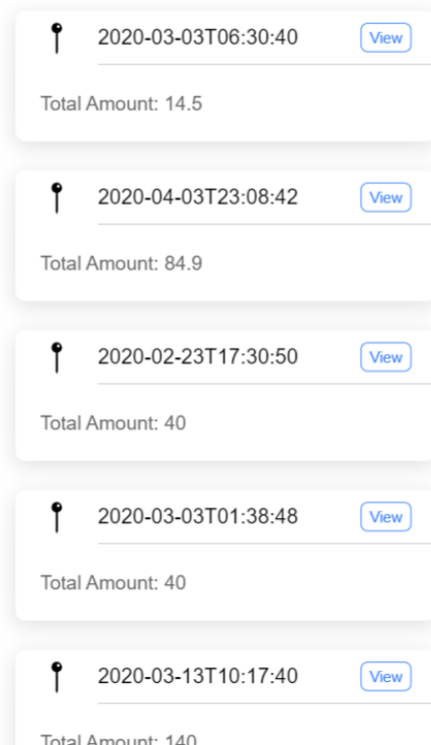
Payment Page



Tap on this to view customer personal information. The setting button will only show up when customer is logged in.

Tap on this to view history purchases.

User Page




Display a list of purchase records

View Order Page

× **Personal Information** [Edit](#)

Username:	customer1
Email:	customer1@gmail.com
PhoneNumber:	7654321
Address:	Singapore
Country:	Singapore
Birthday:	2003-09-20
Gender:	male

 Logout

Customer can tap on Edit button to edit personal information

This page shows up when customer tap on the setting button on User Page. It displays customer's personal information.

Tap here to log out the customer

User Info Page

× **Personal Information** [Cancel](#)

Email *

Password *

Phone Number *

Gender >

Birthday >

Address *

Country *

[Update](#)

[Clear](#)

Customer can edit their personal information and update

User Info Page

6. References

Pixel Union Shop. 2019. "22 must-know mobile ecommerce stats for 2020," *Pixel Union*, Pixel Union, December 11 (available at <https://pixelunion.net/blogs/state-of-the-union/mobile-ecommerce-stats>; retrieved May 3, 2020).

Clement, J. 2020. "Mobile shopping penetration 2019," *Statista*, February 14 (available at <https://www.statista.com/statistics/280134/online-smartphone-purchases-in-selected-countries/>; retrieved May 3, 2020).

¹ "Mobile Commerce Sales in 2020." 2020. *Oberlo*, January 14 (available at <https://www.oberlo.com/statistics/mobile-commerce-sales>; retrieved May 3, 2020).

Koksal, I. 2019. "Video Gaming Industry & Its Revenue Shift," *Forbes*, Forbes Magazine, November 12 (available at <https://www.forbes.com/sites/ilkerkoksal/2019/11/08/video-gaming-industry--its-revenue-shift/#1c8722db663e>; retrieved May 3, 2020).

"The Global Games Market Will Generate \$152.1 Billion in 2019 as the U.S. Overtakes China as the Biggest Market." (n.d.). *Newzoo* (available at <https://newzoo.com/insights/articles/the-global-games-market-will-generate-152-1-billion-in-2019-as-the-u-s-overtakes-china-as-the-biggest-market/>; retrieved May 3, 2020).

Prescott, S. 2019. "The most popular desktop gaming clients, ranked," *pcgamer*, PC Gamer, July 5 (available at <https://www.pcgamer.com/the-most-popular-desktop-gaming-clients-ranked/>; retrieved May 3, 2020).

Grubb, J. 2019. "Ubisoft: Steam's revenue model is 'unrealistic'," *VentureBeat*, VentureBeat, August 31 (available at <https://venturebeat.com/2019/08/28/ubisoft-steams-revenue-model-is-unrealistic/>; retrieved May 3, 2020).