

# Improved Shopping Experience with Personalized E-Commerce Systems on Mobile Media

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## 1 Abstract

E-Commerce is one of the most important fields in the world. Many companies use their applications in order to reach more user everyday. Besides web sites, many organizations use mobile applications to create a more convenient and reachable media. With increasing computational power, it is possible to use machine learning or deep learning methods for different problems. In this case study, we tried to implement an intelligent user interface in order to improve user experience in e-commerce field. In this project, we developed a demo application for game shopping, creating an intuitive user interface with tightly integrated back end server that uses machine learning in order to generate different personalized bundles.

## 2 System Design

To design the system, we gathered different components and made them work together. There were two main components, in front end side there is a mobile application and in the back end side there is back end server and machine learning model. Also we used different minor components which will be mentioned below.

For the mobile application, we used Ionic Mobile App Development Framework [2] with Angular JS [1]. We implemented a shopping page, where users can search and browse around games. Also games can be viewed their details page, where pictures and explanations can be viewed. In details page, users can add games into basket.

In order to list the games in application, we used a web API [3]. RAWG API enables application to obtain game information and pictures. After an item of bundle has bought, the information routes directly to the back end server and necessary information is adding to the database. Moreover, for obtaining an information from database, there is a back end server developed by Flask Framework [5]. For example, when a user gets bundle recommendations, this

information is transmitted to front end interface by back end server via a REST API that we built by Flask web framework.

For personalized experience, we implemented a neural network using Steam Data with a neural network that can be reached via this article [4]. Data set for the model acquired from an online Australian gaming community. Also we trained the model in the article of which code can be accessed through the paper.

### 3 Analysis and Results

In the main page, we integrated the application programming interface with mobile application's. This enabled searching for a very comprehensive database of games. In the beginning of the application, a user is getting a collection of recommendation from previous personal shopping, this improves personalized shopping experience. Main screen can be seen in Figure 1. Below the personalized bundle, there are mostly searched games in the main page. Users can search for other games by using search bar. On a click action, a detail page opens that belong to desired game. Also it is possible to navigate through Profile Page and Basket pages by using the icons on top right corner.

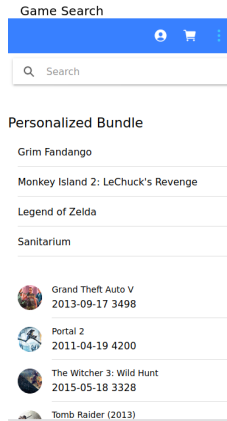


Figure 1: Main Page with Recommendations and Searching Interface

User interface is quite convenient, you can simply click search button and search for various games. When you make a query, a drop down list automatically appears with best matching results. After clicking an item, details page opens. In the details page, a picture of the game appears with explanations. By scrolling down, it is possible to obtain ranking information. Add To Basket button adds item to basket, which can be purchased later. Details Page can be seen in Figure 2.

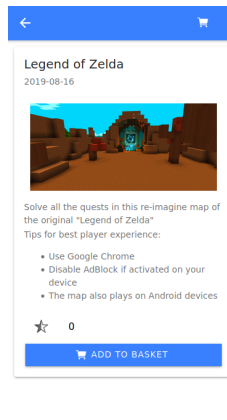


Figure 2: Game Details Page

On Basket Page, items can be seen. It is possible to delete items by swiping left and clicking Delete. Items can be bought by clicking Buy button. Basket Page can be seen in Figure 3.

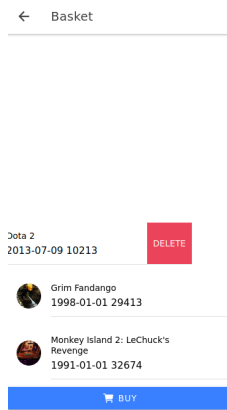


Figure 3: Basket

From Main Page by clicking User Profile icon it is possible to navigate Profile Page. Personal information is editable and it is possible to look Game Library.

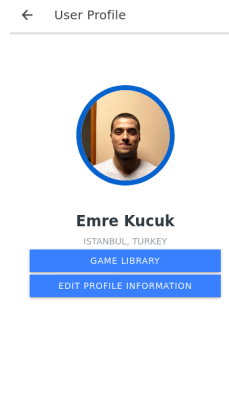


Figure 4: Profile Page

## 4 Conclusion

This application has been a great experience for us to understand how new media like smart phones can be used by e-commerce sector. Also searching and learning different techniques in e-commerce field improved our knowledge substantially. Creating an intuitive interface had different challenges, but it definitely contributed our user experience background.

## References

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- [5] Pallets Projects. Flask.