

UNIVERSITY OF ASIA PACIFIC

Department of Computer Science of Engineering



Complex Engineering Problem Mapping:

Course code: CSE(410)

Course Title: Software Development

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Complex Engineering Problem mapping

Title: Ecommerce with recommendation system.

Motivation: We want to build an E-commerce site with a recommendation system which recommends the product depending on previous search data.

Objective: Today, it is an indispensable technology for any e-commerce, as it makes product recommendations for the consumer, acting as a virtual seller. This facilitates navigation within the store and raises the user experience, because it makes the shopping journey much more enjoyable.

Critical Challenges: We observe many products are added more frequently to the database of recommendation systems, only already existing products are recommended to users as newly added products are not rated yet. So an issue of latency arises. The collaborative filtering method and category-based approach in combination with user-item interaction can be used to deal with this issue. Security of user data is also a critical challenge to handle. Because users are not forced to share their data.

Conflicting Requirement: When a customer first registers on our site the recommendation system has not enough data for recommendation.

How Ps and Ks are addressed through the project and mapping among Ps,COs and POs :

Ps	Attribute	How Ps are addressed through the project	CO	PO
P1	Depth of Knowledge Requirement	<p>->In this project we need proper knowledge about the ML,Dataset, SSLCOMMERZ Payment Gateway Sandbox(K8).</p> <p>Data Survey from link-> https://docs.google.com/forms/d/e/1FAIpQLSf83fyTNcf8yT4bwhNPCH2jhYdFRbMpz_vu4G9e9ZHUmazDAQ/viewform</p> <p>->UI(User Interface) design(multi-layer model design)(K5) and Implementation Web using Django,Python.(K6)</p> <p>->Knowledge of software engineering and E-commerce Recommendation System.And also know about various ML models(K3,K4).</p>	CO1 CO2 CO3 CO5 CO7 CO9 CO10	PO-b PO-c PO-e PO-h PO-j PO-l PO-a
P2	Range of Conflicting Requirement	Because of the collaborative filtering model every unique product recommends some product automatically. If a seller doesn't want to recommend any products he/she can't do this.		

P3	Depth of Analysis Required	We are formulating a recommendation system for studying collaborative filtering. We have to gain more knowledge about machine learning and their various models for building recommendation systems.	CO1 CO3 CO9	PO-b PO-e PO-l
P4	Familiarity of Issues	Depending on collaborative filtering, we have to process lots of data which causes overload into the database and consumes measurable time. That's why the user experience will be degraded.	CO1 CO4 CO7	PO-b PO-f PO-j
P5	Extent of applicable codes	Generate proper solutions for our project implementation based on customer requirement and technology maintenance. Like : SSL-Commerz	CO9	PO-l
P6	Extent of stake-holder involvement and conflicting requirements	The purpose of this study is to examine the current level of stakeholder involvement during the project's planning process. Stakeholders often provide the needed resources and have the ability to control the interaction and resource flows in the network.	CO2	PO-c

		->Project leader ->Senior management ->Project team members ->Project customer ->Resource managers		
P7	Interdependence	->Dataset(derive from database) ->Payment System ->Database	CO5 CO6 CO8	PO-h PO-i PO-k

Addressing Complex Activities (As) through the project:

As	Attribute	How As are addressed through the project
A1	Range of Resources	<p>In the development stage, the project requires the use of diverse resources including different types of Dataset.</p> <p>Information: Product description,Product title etc,</p> <p>Technologies: sslcommerz</p> <p>People: Developers.</p>
A2	Level of Interaction	<p>By using ML model, analyse the Product title and Product description, detect item-item collaborative products for recommendation.In this case we try to recommend a product based on their title and descriptions to users.In this case we face various problems.we collect dataset from kaggle and we try to patch up with our project requirement,and also follow youtube for solve this problem.And we also browse different types of site like Stack overflow,kaggle,quora.</p>

A3	Innovation	A degree of innovation is needed to develop the machine-learning based item-item collaborative model using the available data set. Use a dataset from our json dataset of products.
A4	Consequences for society and the environment	By recommending the product sometimes it's very user privacy confidential . If we recommend fake products that are viral that can stop bad consequences for our society.
A5	Familiarity	This project deals with Data-Science based on recommendation ml model analysis for students.

CO-PO mapping for this project:

CO No.	CO Statements: Upon successful completion of the course, students should be able to:	Corresponding POs
CO1	Identify, formulate, and analyze a real world problem based on requirement analysis.	2-Problem Analysis
CO2	Design/Develop a working solution on a real world problem using s/w designing tools.	3-Design/ development of solutions
CO3	Use modern development tools which are popular among s/w developers.	5-Modern Tool Usage

CO4	Identify societal, health, safety, legal and cultural issues related to the project.	6-The Engineer and Society
CO5	Practice professional ethics and responsibilities and norms of engineering practice.	8-Ethics
CO6	Work as a team and fulfil individual responsibility.	9-Individual and Team work
CO7	Communicate effectively through presentation and write effective reports and documentations on the project.	10-Communication
CO8	Apply project management principles using Version Control System, and produce cost value analysis.	11-Project Management and Finance
CO9	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of requirement changes and introduction of modern development tools	12-Lifelong learning

CO10	Apply the S/W Engineering knowledge to provide a working solution on a real world problem	1-Engineering Knowledge
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