Date	26 September 2023
Project Name	E-Commerce Application on IBM Cloud foundary

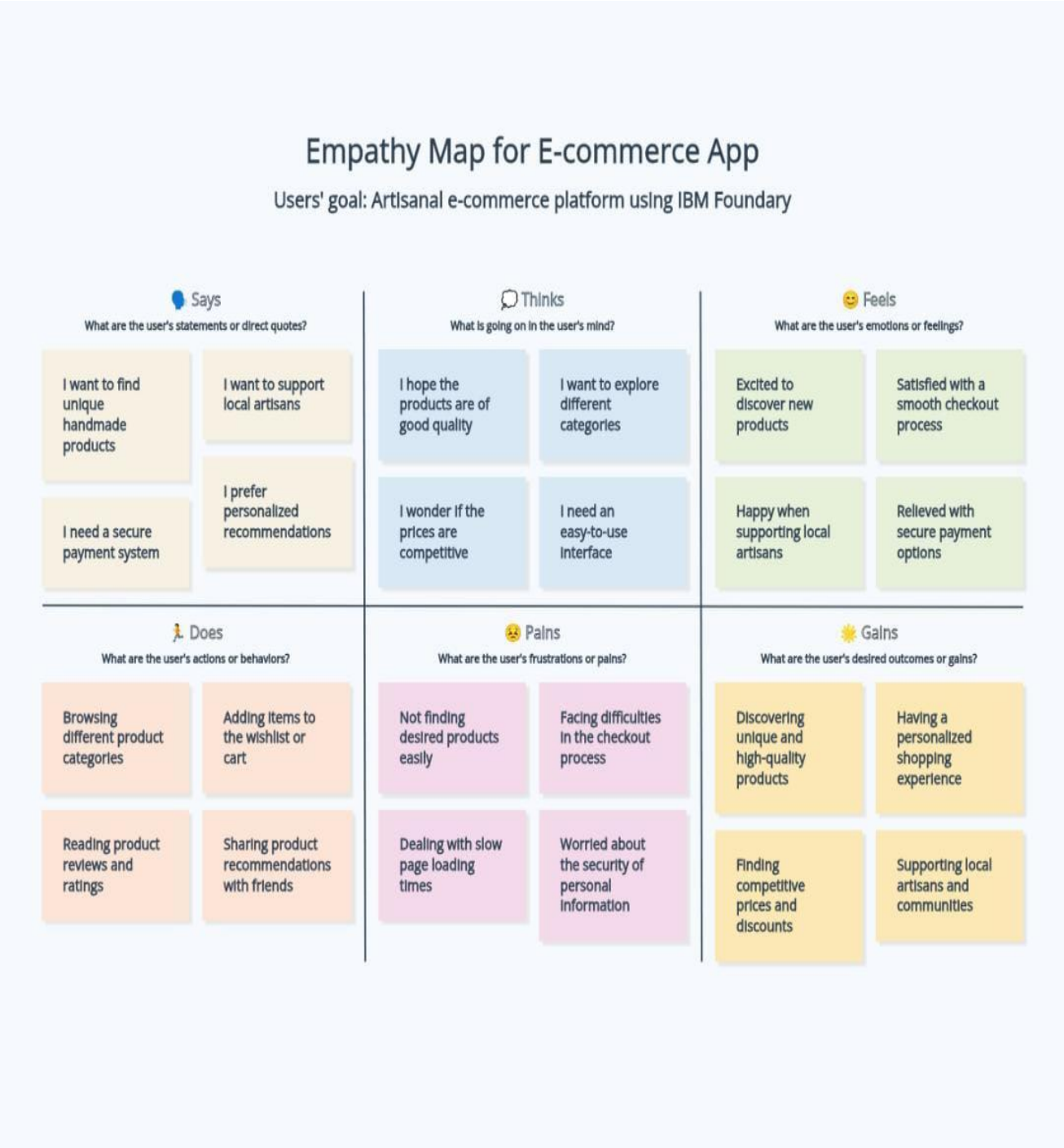
PROBLEM STATEMENT:

Build an artisanal e-commerce platform using IBM Cloud Foundry. Connect skilled artisans with a global audience. Showcase handmade products, from exquisite jewelry to artistic home decor.Implement secure shopping carts, smooth payment gateways, and an intuitive checkout process. Nurture creativity and support small businesses through an artisan's dream marketplace

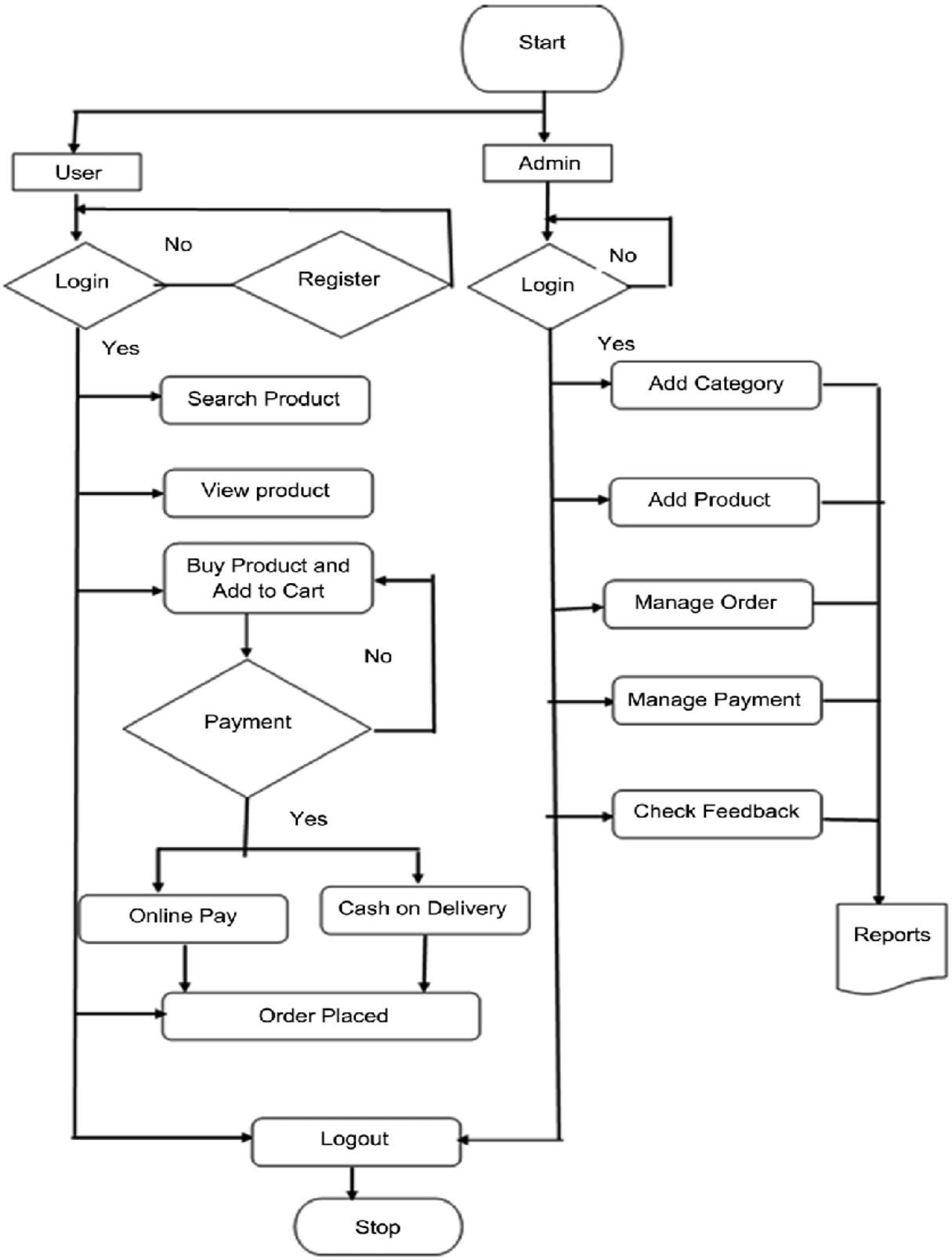
DEFINITION:

The project is to build an artisanal e-commerce platform using IBM Cloud Foundry. The goal is to connect skilled artisans with a global audience, showcasing their handmade products and providing features like secure shopping carts, payment gateways, and an intuitive checkout process. This involves designing the e-commerce platform, implementing necessary features, and ensuring a seamless user experience.

EMPATHY MAP:


Empathy Map for E-commerce App
Users' goal: Artisanal e-commerce platform using IBM Foundary
Says
What are the user's statements or direct quotes?
I want to find unique handmade products
I want to support local artisans
I prefer personalized recommendations
I need a secure payment system
Thinks
What is going on in the user's mind?
I hope the products are of good quality
I want to explore different categories
I wonder if the prices are competitive
I need an easy-to-use interface
Feels
What are the user's emotions or feelings?
Excited to discover new products
Satisfied with a smooth checkout process
Happy when supporting local artisans
Relieved with secure payment options
Does
What are the user's actions or behaviors?
Browsing different product categories
Adding items to the wishlist or cart
Reading product reviews and ratings
Sharing product recommendations with friends
Pains
What are the user's frustrations or pains?
Not finding desired products easily
Facing difficulties in the checkout process
Dealing with slow page loading times
Worried about the security of personal information
Gains
What are the user's desired outcomes or gains?
Discovering unique and high-quality products
Having a personalized shopping experience
Finding competitive prices and discounts
Supporting local artisans and communities

ARCHITECTURE DIAGRAM:



LITERATURE SURVEY

S.NO	YEAR	TOPIC	AUTHOR NAME	PAPER	FINDINGS
1.	2011	E-Commerce Websites Operation Evaluation	JinzhongLu,Feng Guan	IEEE	To solve the problems from E-Commerce Websites enterprises and perfect E-Commerce Websites operating effects.
2.	2011	E-commerce Application Model Based On Cloud Computing	Tairan Liu	IEEE	Cloud-based e-commerce application model allows enterprises to lower costs through the effective implementation of ecommerce activities, and solves the problem of enterprises cannot develop e-commerce activities due to lack of resources.
3.	2012	Research of E-Commerce Based on Cloud Computing	Chunling Sun	Heidelberg	A wide perspective in the application of E-commerce by describing the conception and characteristic of cloud computing, and special analyzed the main aspect of improving E-commerce by cloud computing.
4.	2013	A New Trusted and Secured E-commerce Architeture for Cloud Computing	KawserWazed Nafi, TonnyShekha Kar, Md. AmjadHossain , M. M. A. Hashem	IEEE	A newer e-commerce architecture depends on encryption based secured and fuzzy logic based certain trust model which will be helpful to solve

					present e-commerce problems.
5.	2014	E-Commerce Security issues	Mohamad Ibrahim Ladan	IEEE	The different types of security issues facing e-commerce system will be presented and categorized ,measures on how to deal with these security issues to protect e-commerce systems
6.	2015	E-Commerce Cloud: Opportunities and Challenges	Mariam Al-Jaberi,NaderMohamed,Jameela Al-Jaroodi	IEEE	A set of opportunities and challenges have been discussed based on related research to highlight the main advantages provided by the cloud for e-commerce applications and discuss the relevant concerns and issues.
7.	2015	Research on the evaluation of e-commerce website under the environment of big data	Pingping Dong	IEEE	The evaluation index of E - commerce website and introduce the evaluation method of e-commerce website ,especially the construction of website with big data.
8.	2016	Cloud Computing based E-Commerce Model	KanuGoel, Manu Goel	IEEE	The idea that cloud computing and data mining have a great perspective in the field of e-commerce, the integration model of e-commerce with cloud computing that focuses on the reduction of data redundancy and the efforts to synchronize it between the e-commerce vendors.

9.	2016	E-Commerce Website Quality Assesment Based On Usability	Tanya Singh, Sachin Malik , DarothiSarkar .	IEEE	To identify the important parameters to improve usability of the website using the valuable review of daily website users via the conduct of survey**.**
10.	2016	Developing an E-Commerce Website	Syed EmdadUllah, Tania Alauddin and Hasan U. Zaman	IEEE	Developing an e-commerce website can be easily replicated and followed in developing e-commerce websites in the developing and underdeveloped countries where computing resources are scarce and expensive because of their socio-economic condition.
11.	2017	New E-Commerce User Interest Patterns	Matthias Volk, Abed ElrahmanShareef, NaoumJamous , Klaus Turowski	IEEE	An experimental evaluation method will be applied to verify the applicability and efficiency of the used algorithm, along with the associated framework.
12.	2018	Cloud Computing and E-commerce Adoption in Indonesia	FahrizalLukmanBudiono , FahrizalLukmanBudiono , FahrizalLukmanBudiono	IEEE	Identifies areas of similarity and gaps in the road map to enable future research to best promote rural area development in Indonesia and reduce the digital divide.

13.	2018	Cloud Computing of E-Commerce	Tamara Almarabeh, Yousef Kh.Majdalawi	Research Gate	An overview for cloud computing in E-commerce through discussing various definitions for both concepts,highlighting the benefits and challenges for applying Cloud computing in E-Commerce ,and discussing a suggested cloud computing e-commerce framework.
14.	2018	SaaS-E-Commerce Platforms web Accessibility Evalution	Osama Sohaib[1], Mohsen Naderpour[1,2], Walayat Hussain[1]	IEEE	Shopify cloud-based ecommerce platform has a high number of web accessibility features from the proposed cloud accessibility framework followed by 3dCart, BigCommerce, Volusion, and WooCommerce.
15.	2019	Strategic development of Fresh E-Commerce With Respect to New Retail	Meng, Lingyu Christenson, Lauren Dong, Zhijie	IEEE	Marketplace to provision and produce a new AWS Cloud server, experiment with your server and Bitnami images without worrying about being billed for usage.
16.	2019	Deploying an e-commerce website using Amazon Web Services	ShivanshiShokeen, Archana Singh	IEEE	Marketplace to provision and produce a new AWS Cloud server. And since AWS offers a Free Tier valid for 12 months, you'll have a lot of time to experiment with your server and Bitnami images without worrying about being billed for usage.

17.	2020	Research on e-commerce security and data analysis platform in the era of big data	Qiao Tan	IEEE	The perspective of electronic security data, the hidden dangers of e-commerce can be effectively analyzed, and the security system of e-commerce can be effectively improved.
18.	2020	Risk Management Of E-commerce security In Cloud Computing Environment	Yan Li ,Junfeng Li	IEEE	Cloud Computing has the entry point to analyse the security of e-commerce in a cloud computing environment in detail,improving the users trust,satisfaction
19.	2021	An Optimal Approach for E-Commerce Application Service on to the Public Cloud Environment	Mamta Sharma, Dr. Navneet Sharma,	IEEE	The concept of ERP technology is merged with the various services offered by the cloud such as SaaS, PaaS, and IaaS.**T**he cloud services definitions were based upon a person to person or organization to organization in terms of flexibility.
20.	2021	Design and Implementation of E-Commerce Recommendation system model Based on Cloud Computing	CaeXuecong, LiZhaoming,ChenSisi	IEEE	A solution to build e-commerce recommendation system on the cloud computing platform to improve the ability of massive data mining and business intelligence analysis, and realize high-performance computing at a lower cost.

REFERENCE LINKS:

1. https://ieeexplore.ieee.org/document/6011406
2. https://ieeexplore.ieee.org/abstract/document/611337
3. https://www.researchgate.net/publication/299759348_Research_of_E-Commerce_Based_on_Cloud_Computing
4. https://ieeexplore.ieee.org/document/6572690
5. https://ieeexplore.ieee.org/document/6984195/similar#similar
6. https://ieeexplore.ieee.org/document/7093867
7. https://ieeexplore.ieee.org/document/7405846
8. https://ieeexplore.ieee.org/document/7807775
9. https://ieeexplore.ieee.org/document/7813698
10. https://ieeexplore.ieee.org/document/7522526
11. https://ieeexplore.ieee.org/document/8029352
12. https://ieeexplore.ieee.org/document/8706853
13. https://www.researchgate.net/publication/329417336_Cloud_Computing_of_E-commerce
14. https://ieeexplore.ieee.org/document/8491621
15. https://ieeexplore.ieee.org/document/8743243
16. https://ieeexplore.ieee.org/abstract/document/9055586
17. https://ieeexplore.ieee.org/document/9361028
18. https://ieeexplore.ieee.org/document/9388507
19. https://ieeexplore.ieee.org/document/9388507
20. https://ieeexplore.ieee.org/document/9421260

DESIGN THINKING:

1.Platform Design: Design the platform layout with sections for product categories, individual product pages, shopping cart, checkout, and payment.

2.Product Showcase: Create a database to store product information such as images, descriptions, prices, and categories.

3.User Authentication: Implement user registration and authentication features to enable artisans and customers to access the platform.

4.Shopping Cart and Checkout: Design and develop the shopping cart functionality and a smooth checkout process.

5.Payment Integration: Integrate secure payment gateways to facilitate transactions.

6.User Experience: Focus on providing an intuitive and visually appealing user experience for both artisans and customers.

PROPOSED SOLUTION:

1. Develop a cloud-native e-commerce platform leveraging IBM Cloud Foundry for scalability and reliability.

2. Implement microservices architecture, integrating with IBM Db2 for robust data management.

3. Utilize serverless computing for cost-effective scaling and employ CI/CD for efficient development.

4. Ensure top-tier security measures, including encryption and access controls.

5. Optimize performance, with load balancing and monitoring, while managing costs effectively.