Under the aegis of Vijayam Educational Trust
CATALYST COLLEGE
(A Unit of CIMAGE Group of Institutions)
Institution approved by Education Department, Government of Bihar, Affiliated to Patliputra University, Patna

Ref: CC/WRSP-NOT/22/52/57 .

Date: 2-Feb-2022

NOTICE

This is to inform all the Students that a workshop on Android App Development with Flutter: A Research-Driven Approach to UX/UI Design will be organized on 18.2.2022 from 9:30 AM to 5:30 PM in the auditorium of Catalyst College.

The workshop is completely free, and no money will be charged for the Training or Certification.

Interested students are instructed to meet the Activity In-Charge / Class Coordinator for more details and their registration.

By the order of

Principal

Principal
CATALYST COLLEGE
Plot No.- C-16(P) Patliputra Industrial Area
Patliputra, Patna-13

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Patliputra, Patna- 800013
(+91) 7250767676
megha@cimage.in

Date: 18.2.2022

Workshop Title:

Android App Development with Flutter: A Research-Driven Approach to UX/UI Design

Number of Students Participated: 48

Objectives:

In today's mobile app development landscape, creating an intuitive, user-centered design is just as important as the underlying functionality. With Flutter, developers have the ability to build high-performance, visually appealing apps that work across multiple platforms using a single codebase. However, successful mobile apps require more than just technical proficiency—they need to address real user needs, follow best design practices, and continuously evolve based on user feedback.

This workshop, "Android App Development with Flutter: A Research-Driven Approach to UX/UI Design," is designed for developers, designers, and product managers who want to incorporate research methodologies into their design and development process. Attendees will learn how to design and build beautiful, user-centric Android apps using Flutter, backed by data-driven insights, user research, and best practices in UX/UI design.

Module1.Introduction to Flutter and UX/UI Design in Mobile App Development

- Overview of Flutter:
  - What is Flutter and why it's a game-changer for cross-platform development.
  - Flutter's advantages for Android app development: Fast development, expressive UIs, and single codebase for multiple platforms.
- UX/UI Design Basics:
  - The significance of UX (User Experience) and UI (User Interface) design in mobile app development.
  - The connection between well-designed apps and user retention, engagement, and satisfaction.
  - Why a research-driven approach to UX/UI is critical for creating successful Android apps.

Module2.Understanding User Needs: Researching and Defining Your Target Audience

- User Research Methodologies:

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    - Conducting user interviews, surveys, and focus groups to understand user pain points, needs, and goals.
    - Analyzing user personas and customer journeys: Creating empathy maps and user stories to define app requirements.
- Market Research for Mobile Apps:
    - Identifying market trends: Analyzing competitors, user reviews, and app store feedback to gain insights into user expectations.
    - Using data analytics: Leveraging existing app data (Google Analytics, Firebase) to guide design decisions.
- Interactive Exercise:
    - Create a user persona and map out the user journey for an app idea. Focus on pain points, key features, and user needs.

Module3. Principles of UX/UI Design for Mobile Apps

- Core UX Principles:
    - User-centric design: Designing with the user in mind, focusing on usability, accessibility, and efficiency.
    - Consistency and coherence: Building predictable navigation flows and interface elements.
    - Visual hierarchy and readability: Prioritizing information and ensuring clear, digestible layouts.
- Core UI Principles:
    - Flutter Widgets and Material Design: Using Flutter's built-in widgets and adhering to Google's Material Design principles for Android.
    - Color theory, typography, and iconography: Choosing the right visual elements to align with the brand and user expectations.
    - Responsive design: Ensuring your app works seamlessly across different device screen sizes and orientations.
- Interactive Exercise:
    - Analyze a sample mobile app (using wireframes or live apps) to identify strengths and weaknesses in its UX/UI design.

Module4. Wireframing and Prototyping: The Foundation of Good Design

- Wireframing Your App:
    - The importance of wireframes in the design process: Sketching ideas and creating low-fidelity designs to map out user interactions.
    - Tools for wireframing and prototyping: Figma, Adobe XD, Sketch, and Flutter's own set of widgets.
- Prototyping for Validation:
    - Building interactive prototypes to validate design decisions with users before starting development.
    - Using prototypes to gather user feedback and make informed design iterations.

- Hands-On Exercise:
  - Create wireframes for a sample app using a design tool (Figma or Adobe XD).
  - Prototype key interactions and user flows (e.g., login, home screen, and profile management).

Module5.ranslating UX/UI Design to Flutter: Best Practices

- Implementing UX/UI Designs in Flutter:
  - Flutter widgets and layout techniques: From basic widgets (Container, Row, Column) to complex layouts (GridView, ListView).
  - Flutter's Material and Cupertino widgets: Designing consistent, native-like experiences for Android and iOS users.
  - Customizing widgets: Leveraging Flutter's flexibility to build unique designs while maintaining usability.
- Advanced UI Techniques in Flutter:
  - Using animation and transitions to enhance UX: Flutter's support for custom animations and gestures.
  - Creating adaptive and responsive UIs: Designing layouts that adjust to different screen sizes and orientations using Flutter's layout system.
  - Implementing themes and styles to maintain design consistency across the app.
- Hands-On Exercise:
  - Implement a simple Flutter app UI based on the wireframe you created earlier. Focus on using Flutter widgets for layout, typography, and interaction.

Module6. User Testing and Iteration: Researching Design Performance

- The Importance of User Testing:
  - Validating design decisions through user testing: Using usability tests to identify friction points in the design.
  - A/B testing: Comparing different design versions to see which one performs better.
  - Gathering and analyzing user feedback to iterate on the design and improve the user experience.
- Tools for User Testing and Feedback:
  - Tools like UserTesting, Lookback.io, and TestFlight for gathering real-time user feedback.
  - Integrating user feedback directly into Flutter to refine the design and features based on data.
- Interactive Exercise:
  - Conduct a usability test for your prototype using peer feedback. Identify at least three areas for improvement based on real user experiences.

Module7. Optimizing UX/UI for Performance and Accessibility

- Performance Optimization for Mobile Apps:
  - Best practices for optimizing app performance: Reducing widget rebuilds, minimizing UI thread blocking, and optimizing image and asset loading.
  - Testing app performance in Flutter: Using Flutter DevTools for debugging and performance profiling.
- Ensuring Accessibility in Your App:
  - Designing for accessibility: Making sure your app is usable by everyone, including people with disabilities.
  - Flutter accessibility features: Screen reader support, high-contrast themes, and semantic widgets.
- Interactive Exercise:
  - Review your Flutter app for performance and accessibility improvements. Use Flutter's accessibility tools to enhance your app's inclusivity.

Module8.Scaling UX/UI Design: From Prototype to Production

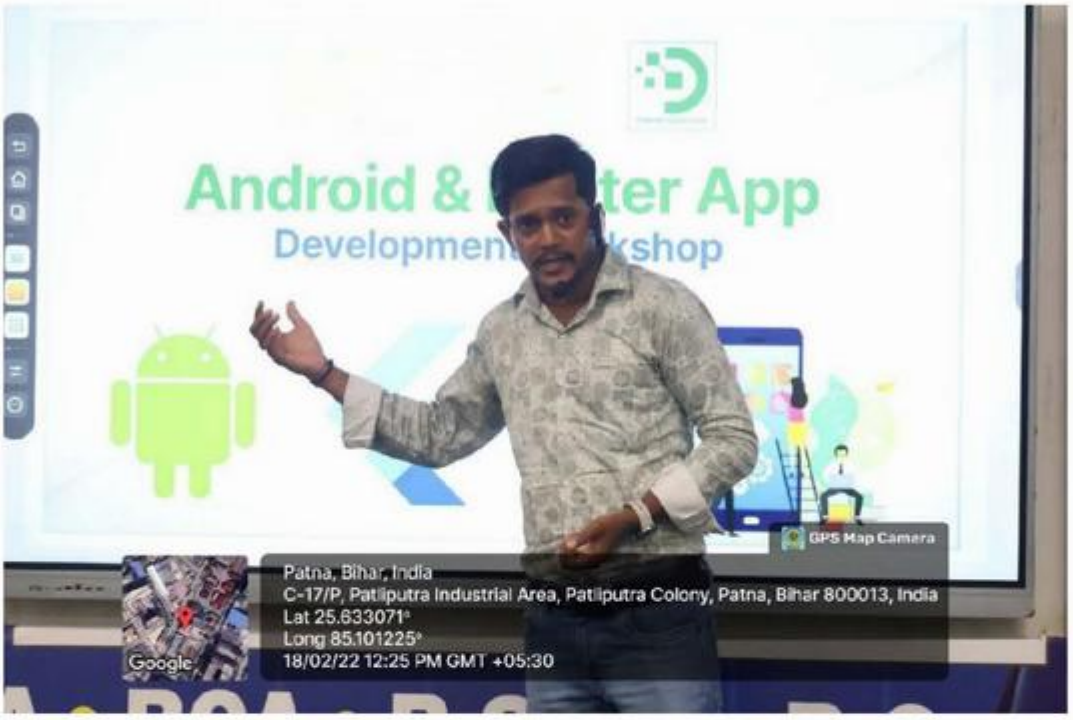
- Scaling Design Systems:
  - Building a scalable design system for your app: Creating reusable components, typography, and color schemes that can be applied across your entire app.
  - Using Flutter's built-in theming capabilities to ensure a consistent look and feel.
- Collaboration Between Designers and Developers:
  - Best practices for collaboration between UX/UI designers and Flutter developers: Using version control systems (e.g., Git) and design handoff tools (e.g., Zeplin, Figma).
  - Keeping designs flexible and adaptable during development and after launch.
- Deployment and Post-Launch Design Iteration:
  - Using analytics and feedback post-launch to improve the UX/UI.
  - How to integrate continuous feedback and release design updates with Flutter's hot reload feature.
- Interactive Exercise:
  - Develop a design system for your app that includes reusable components and global styles for a scalable design solution.

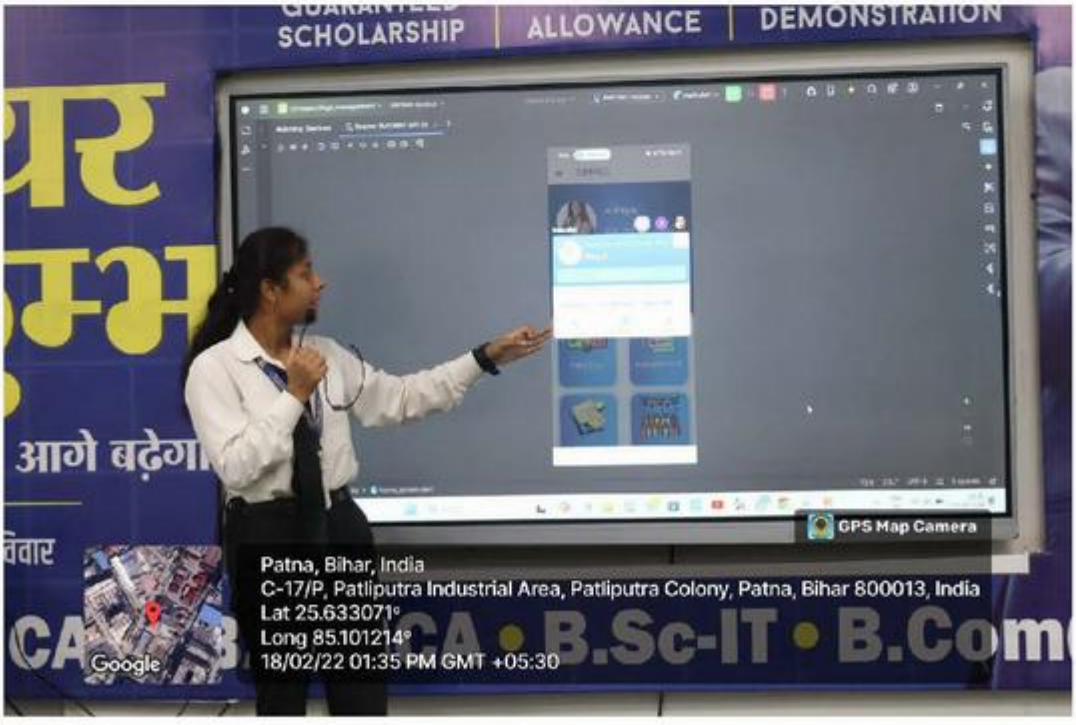
Key Takeaways

- A complete understanding of how to use research methodologies to create user-centered UX/UI designs for Android apps using Flutter.
- Hands-on experience with wireframing, prototyping, and implementing designs in Flutter.
- Practical knowledge of performance optimization, accessibility, and scaling design systems for Flutter apps.
- An understanding of how to incorporate continuous user feedback and iteration into the app development process.

Android App Development with Flutter: A Research-Driven Approach to UX/UI Design

Date:-18/02/2022





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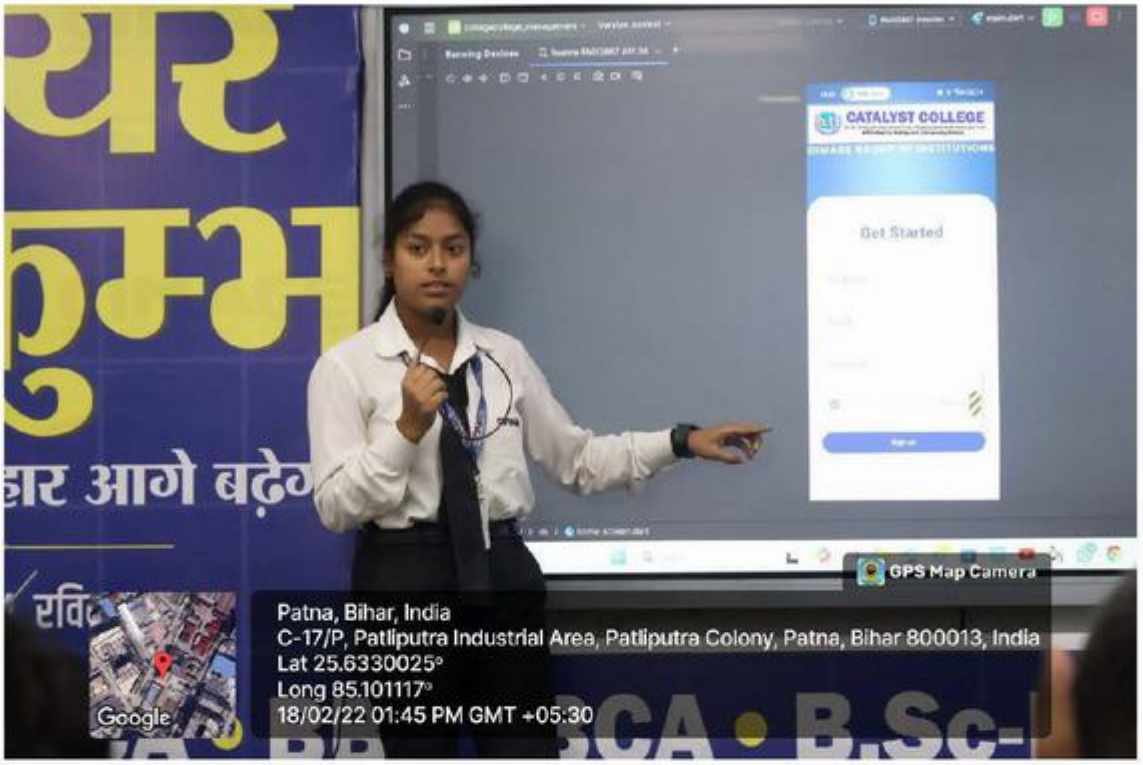

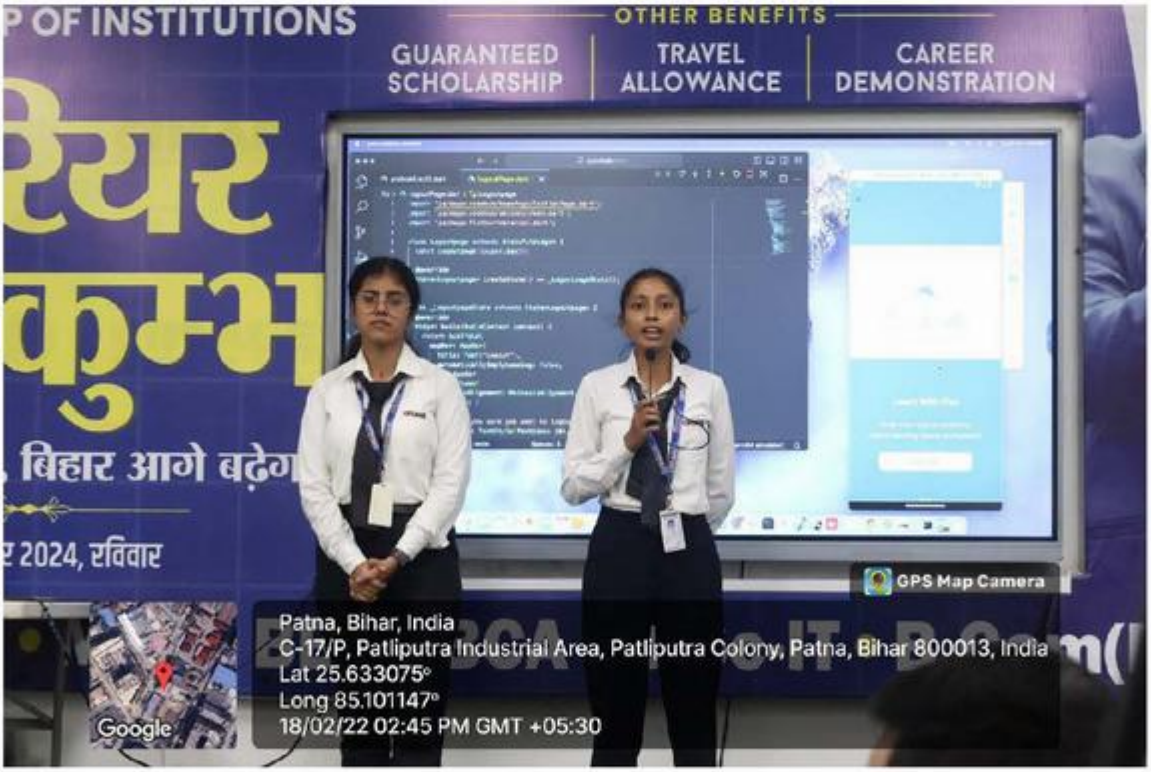

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Date:-18/02/2022

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Registration

For Workshops/Seminars/Conferences during Academic Year 2022-2023

Android App Development with Flutter: A Research-Driven Approach to UX/UI Design

(18 February 2022)

S. No.	ID	Name of the student	Student's Signature
1	445-8276	Rana Yadav	Rana Yadav
2	445-8003	Raushan Kumar	Raushan Kumar
3	445-8230	Raushan Kumar	Raushan
4	445-8171	Raushan Raj	Raushan Raj
5	445-8042	Ravi Kumar	Ravi Kr.
6	445-8148	Riya Kumari	Riya kumari
7	445-8258	Rohit Kumar Chaurasia	R. K. Chaurasia
8	445-8132	Rohit Kumar	R. Kr.
9	445-8222	Rohit Kumar	Rohit Kr.
10	445-8175	Sabir Jalani	Sabir Jalani
11	445-7903	Sagar Kumar	Sabir Jalani
12	445-8317	Sahil Kumar	Sahil Kumar
13	445-8086	Sapna Kumari	Sapna kri
14	445-8032	Satyam Kumar	S. Kr.
15	445-8153	Saurabh Kumar	Saurabh Kumar
16	445-7963	Saurav Kumar	Saurabh Kumar.
17	445-7910	Shani Kant Prasad	Shani Kant Pr.
18	445-8063	Shikha Rani	Shikha Rani
19	445-8117	Sidharth Mehta	Sidharth Mehta
20	445-8205	Srikant Kumar	Srikant Kr.
21	445-8210	Sumit Kumar	Sumit kr.
22	445-8028	Suraj Kumar	Suraj Kumar
23	445-8238	Vikash Kumar	V. Kr.
24	445-8231	Vinit Kumar	Priya Kri
25	445-7188	Priya Kumari	Priya
26	445-7175	Gautam Mishra	G. Mishra
27	445-7179	Abhishek Kumar	A. Kumar
28	445-7194	Rakesh Kumar	Rakesh kumar
29	445-7204	Abhay Vishal	Abhay Vishal
30	445-7212	Pyare Babu	Pyare Babu
31	445-7216	Rahul Kumar	Rahul

32	445-7219	Krishna Kumar	Krishna Kumar.
33	445-7246	Aman Kumar	Aman Kr.
34	445-7267	Puja Kumari	Puja Kri
35	445-7274	Tarun Kumar	Puja Kumari
36	445-7265	Ujjwal Kumar Singh	U. K. Singh.
37	445-7302	Bipin Kumar	Bipin Kr.
38	445-7322	Sanjeev Kumar	Sanjeev Kr.
39	445-7301	Abhishek Kumar	Abhishek Kr.
40	445-7309	Sonu Sharma	Sonu Sharma
41	445-7300	Khushboo Kumari	Khushboo
42	445-7323	Ayush Kumar	Ayush Kr.
43	445-7330	Hariom Kumar	Hariom Kumar
44	445-7337	Suhani Kumari	Suhani Kri
45	445-7336	Chetan Anand	Chetan Anand
46	445-7281	Ansu Rani	Ansu Rani
47	445-7241	Abhishek Kumar	Abhishek Kr.
48	445-7356	Yashwant Kumar	Yashwant

(Sign.)

Course Coordinator