TECNOLOGÍAS DE LA INFOMACIÓN ÁREA DESARROLLO DE SOFTWARE

GROUP: 4toD

CLASS:

DISEÑO DE APLICACIONES

ACTIVITY:

MOBILE DEVICE ARCHITECTURE

STUDENT:

MARTÍNEZ PÉREZ DIANA

TEACHER:

DR. RAY BRUNNET PARRA GALAVIZ

DATE:

10/01/25

Mobile Device Architecture

Mobile devices are manufactured using multiple electronic or hardware components. These electronic components are interlinked through BIOS systems which is stored in a microchips or flash memory. Operating system is installing in physical storage and it is controlling the hardware components through BIOS systems. Many of the manufactures are developing their own themes called firmware and installing on top of operating system or integrate with operating system to cater their own identity. Various application used in mobile devices are installed in top of operating system. Each application has its own interfaces developed using various application architectures and it is interacting with device users

Mobile architecture comprises the technical blueprints that guide major structural elements, including:

- App Capabilities: The key features and functionality are delivered through the mobile front end.
- Technical Components: Approaches such as native, web, or hybrid compositions.
- Logical Design Patterns: Models like MVC (Model-View-Controller), client-server, and offline-first.
- Integration: Connections to backends, APIs, and services.
- Data Stores: Strategies for local databases and caching.
- Non-Functional Needs: Considerations for user experience, performance, and security.

Mobile device can be categorized into multiple layers. Each layer takes care of different activities and interacts with each other:

- Hardware Layer: Base layer of a mobile device is hardware component. s. Main components are circuit board, processor, display, battery, SIM card slot, memory unit, USB/charging slot, Bluetooth, Wi-Fi, Speaker, Microphone, etc.
- BIOS Layer: Basic Input Output System (BIOS) is a secured set of special code to interact closely with hardware components, it also called bootloader. Normally it resides on internal ROM.

- Operating System Layer: This layer contains the Operating system kernel, system level component services and its configuration.
- Firmware layer: Firmware is a customized operating system. Many of the manufactures are customizing an existing operating system and using as their own operating system. The customization mainly targets to bring some specific features as well as to provide separate look and feel.
- Application Layer: Mobile applications are running on top of operating system. Each application development process might change based on operating system but its working structure is almost same.
- User Interface Layer: This is most attractive and sophisticated part of an application. Using this interfaces, mobile device users are accessing and operating the applications.

Bibliographies:

Kurian, S., & Nirmala. (2018). Layered mobile device architecture. Ijceroline. https://www.ijceronline.com/papers/Vol8_issue10/Version-1/G0810013842.pdf

Capstera. (2024). Mobile Architecture: Designing for the future of Mobile-First. https://www.capstera.com/mobile-architecture/