**Discussion 5.1 – Material Design**

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# Material Design

Material is a design system created by Google to help teams build high-quality digital experiences for Android, iOS, Flutter, and the web.

Components

Material Components are interactive building blocks for creating a user interface, and include a built-in states system to communicate focus, selection, activation, error, hover, press, drag, and disabled states. Component libraries are available for Android, iOS, Flutter, and the web.

Components cover a range of interface needs, including:

* **Display**: Placing and organizing content using components like cards, lists, and sheets.
* **Navigation**: Allowing users to move through the product using components like navigation drawers and tabs.
* **Actions**: Allowing users to perform tasks using components such as the floating action button.
* **Input**: Allowing users to enter information or make selections using components like text fields, chips, and selection controls.
* **Communication**: Alerting users to key information and messages using components such as snackbars, banners, and dialogs.

The important thing to remember is that Material design is a language. It’s not just a UI kit or collection of interface elements, but rather a new way of talking about and looking at interfaces.

Each material object is measured using device independent pixels, or dp. This unit of measurement is a physical unit that can be converted to inches or millimeters based on the device’s screen size. These units allow designers to create interfaces that are independent of a particular screen resolution.

Material design uses dps to measure the height, width, and depth of material. Since digital material is considered “real” it lies on a 3-dimensional coordinate system with X, Y, and Z axes. The following image should elucidate my point:

A screenshot of a screenshot of a computer

Description automatically generated

This diagram is from Google’s spatial objects page in the Material design specs. Layering material objects will create a sense of depth much like in the real world. Content, however, lays flat on the material. Compare this to how a tattoo lays flat on skin or how printed ink lays flat on paper.

Depth is created using light which casts a shadow onto material lower in the hierarchy. The primary light source is flowing down from the screen, so as objects move closer to the screen they cast a darker shadow. Most design elements are still “flat” but use subtle shadows to distinguish between material depth.

### **Resources**

* Component guidelines covering usage, behaviors, and specifications.
* Developer documentation and code for Android, iOS, the web, and Flutter
* Downloadable design files for Figma on the Resources page

Sources:

* + What is Google’s Material Design? – Envato Elements

<https://elements.envato.com/learn/introduction-material-design>

* + Google Material Design page

<https://m2.material.io/design/introduction>