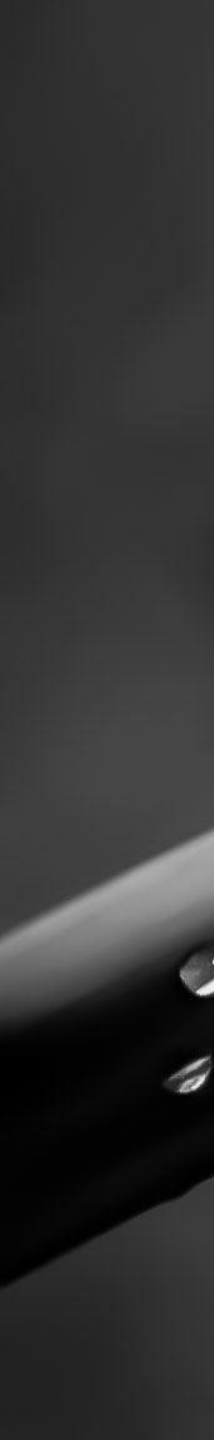
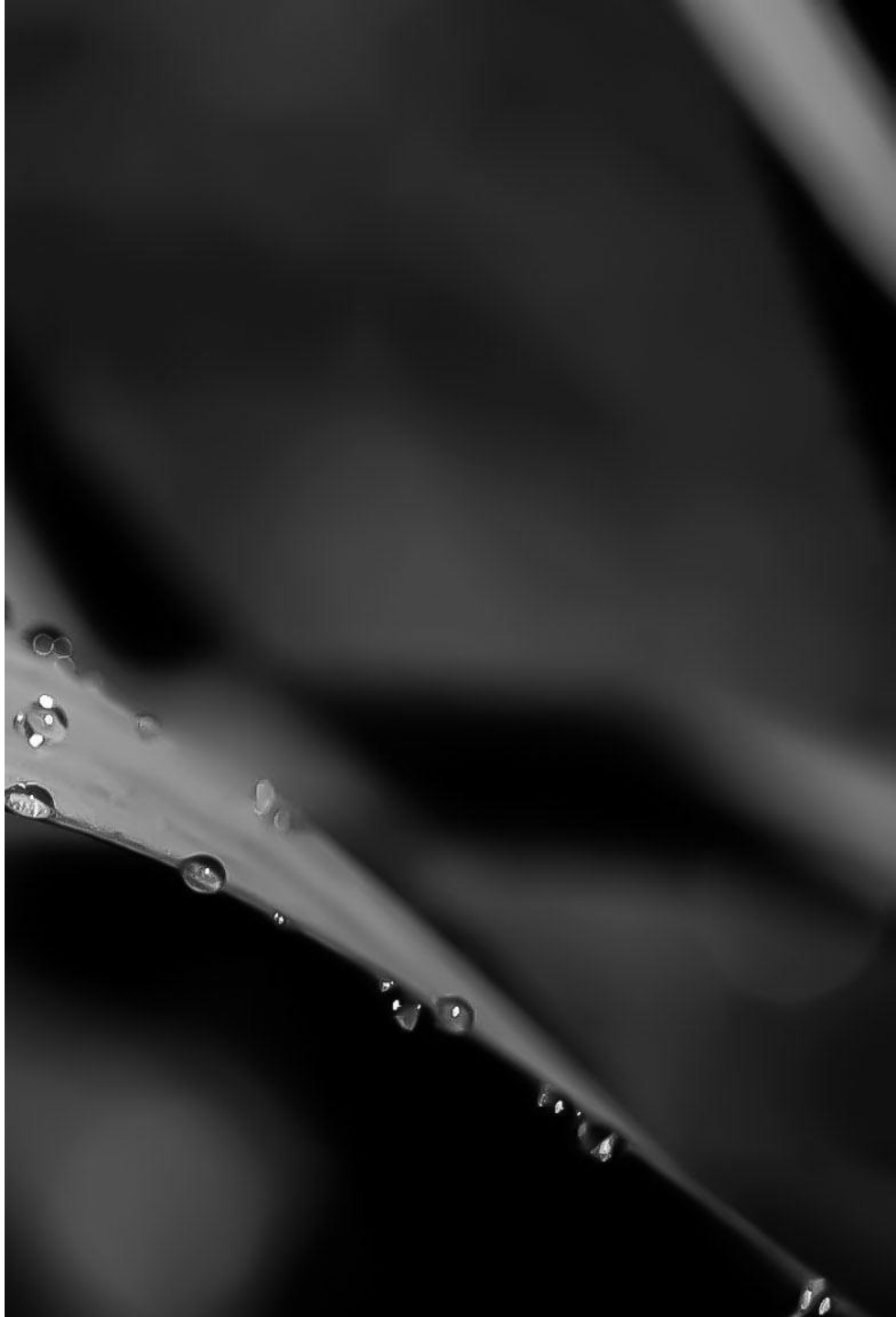
User Interface Design

- Visual design(look&feel)
- Interaction design(functional&logical organization of elements)





Main UI design types

- Graphical user interface (GUI)
  - Web
  - Mobile
- (Touchscreen)
- Voice user interface (VUI)
- Menu-driven
- Gesture-based

Visual design

- How the interface looks, considering things like color, typography, imagery and graphics, logos, icon design and spacing.

Visual design: Color

- Grouping colors:
  - Chromatic
  - Warm
  - Cool
  - Neutral
  - Active&Passive

  - Are assosiated to different things

  - Color wheel
    - Primary colors
    - Secondary colora
    - Tertiary colors

- Color has:
  - Tint
  - Tone
  - Shade

  - Defining a color:
    - Hue
    - Saturation/chroma
    - Lightness/value

    - Contrast

- Color schemes
  - Monochromatic (usually mobiles)
  - Analogous
  - Complementary
  - Split-complementary
  - Triadic
  - Tetradic

- Colors in design:
  - Primary color
  - Secondary
  - Accent
  - Backdrop/background

  - Colors can be noted down in different ways, and the most common ones you will probably come across are Pantone, CMYK, HEX, and RGB.

- Guidelines
  - 2-5 colors, depending what you are designing
  - Match colors with the brand
  - 60-30-10 rule when creating color palette
  - Think accessibility
  - Use of colors should be consistent
  - Most systems reserve a certain red for errors, green for success, yellow for warning, and (possibly a lighter sky) blue for informational messages
  - Design systems such as Material design and Human interface guidelines has their own guidelines for using colors (https://developer.apple.com/design/human-interface-guidelines/foundations/color and https://m3.material.io/styles/color/overview)
  - There are differences when designing for different screens and devices
  - Light vs dark mode color designing

Visual design: Typography

- Typeface
- Font

- Elements of typography:
  - Baseline
  - Cap height
  - X-height
  - Ascender/Descender

- Main generic fonts:
  - Serif fonts
    - Old-style
    - Transitional
    - Didone
    - Slab
  - Sans serif fonts
    - Grotesque
    - Neo-grotesque
    - Geometric
    - Humanist
  - Monospace fonts
  - Cursive (handwriting) fonts
  - Display fonts

  - Sans serif are usually used in mobile and web design
  - Neo-grotesque are typically for mobile design. Roboto is for Android and SF Pro(San Fransisco) sor iOS

- Can be aligned
  - Left
  - Center
  - Right

  - Emphasize
    - Bold
    - Italics
    - Underlining
    - Capitalize
    - Spacing
    - Color

- Size
  - Px
  - Em
  - Rem
  - Sp

  →For screens

  Web: em, rem, pixels

  Mobile: pixel independent; iOS→Points and Android→sp (https://developer.apple.com/design/human-interface-guidelines/foundations/typography and https://m3.material.io/styles/typography/overview)

	Web	iOS	Android	Native Screen Resolution
Units	**pixels** px	**points** pts	**density-independent pixels** (dps) Scalable pixels (sp)	**pixels** px
Scaling Technique	Logical Resolution	Logical Resolution	Density Independence	None
Similarity	web pixel is ≈ iOS point ≈ Android density-independent pixel roughly about the same size in practice Each is about the size of a 'standard screen resolution pixel' if high resolution displays did not exist			Screen resolution pixels are entirely different than the pixels, points, and density-independent pixels on the web, iOS, and Android. Screen Resolution pixels are the actual number of physical pixels on screen.

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- Weight:
  - Light
  - Regular
  - Medium
  - Bold

- Formatting text:
  - Space between letters
  - Line lenght
  - Line height

- Primary/Secondary/(third font)

- Hierarchy:
  - Title/Header
  - Subtitles
  - Body text

  - Scalability

- Guidelines:
  - Fonts can be defined by using CSS
  - If using a font which is not installed in operating system, it will be replaced by some other random font and that might destroy the design completely
  - Use fonts which are included with most of operating systems
  - Consider brand, number of fonts used, language and amount of written content when selecting fonts
  - Use enough whitespace
  - Don’t squeeze or stretch fonts
  - Different font size recommendations for different devices and operating systems
  - Think about readability and reading patterns
  - Consider accessibility

Visual design: Image

Layout

Interaction design:

- How the user interface and its various elements behave and function. For example, what happens when a user clicks on a particular button.