

(Step 3)

Understand the Principle of Good Interface & Design

Content

- Human Considerations in Interface and Screen Design
 - How to Discourage the User
 - What Users Want
 - What Users Do
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 - Screen and Web Page Meaning and Purpose
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Good Interface

- ❑ Mencerminkan kemampuan, kebutuhan, dan tugas penggunaanya.
- ❑ Dikembangkan sesuai dengan spesifikasi kebutuhan perangkat keras.
- ❑ Memanfaatkan kemampuan perangkat lunak pengendalian secara efektif.
- ❑ Mencapai tujuan bisnis dari sistem yang dirancang.

Pertimbangan Manusia Dalam Desain Interface

- ❑ How to Discourage the User
- ❑ What Users Want
- ❑ What User Do

How to Discourage the User

- ❑ Menghilangkan semua gangguan dan putus asa dalam desain, seperti :
 - ✓ Tidak jelasnya *caption* dan penggunaan kata yang buruk
 - ✓ Menampilkan heading yang menyesatkan

What User Want

- ❑ User menginginkan tampilan yang simple, jelas dan mudah dimengerti, seperti :
 - ✓ Design yang sesuai orde, jelas dan tidak ribet
 - ✓ Dapat memperkirakan dimana informasi yang dibutuhkan berada

What User Do

- ❑ Yang pengguna lakukan ketika berinteraksi dengan komputer, seperti :
 - ✓ Mengidentifikasi tugas yang harus dilakukan atau kebutuhan yang harus dipenuhi
 - ✓ Memutuskan bagaimana tugas akan diselesaikan atau kebutuhan terpenuhi.
 - ✓ Komputer Memanipulasi kontrol.
 - ✓ Mengumpulkan data yang diperlukan atau konten sementara menyaring data yang bermakna atau konten.
 - ✓ Bentuk penilaian menghasilkan keputusan yang relevan dengan tugas atau kebutuhan.

Interface Design Goal

- ❑ Mengurangi pekerjaan visual.
- ❑ Mengurangi pekerjaan intelektual.
- ❑ Mengurangi kerja memori.
- ❑ Mengurangi kerja motor.
- ❑ Mengurangi atau menghilangkan beban atau instruksi dikenakan oleh teknologi
- ❑ Hasilnya harus selalu meningkatkan produktivitas dan kepuasan dari pengguna

Screen Design Guidelines

- ❑ A test for a good design
- ❑ Organizing screen elements
- ❑ Screen Navigation and flow
- ❑ Visually Pleasing Composition
- ❑ Typography
- ❑ Keying Procedure
- ❑ Data Output
- ❑ Web sites and Web pages
- ❑ Statistical graphics
- ❑ Technological considerations

The Test for a Good Design

- ❑ Apakah semua elemen layar (caption, data, judul, text, informasi, tipe control, elemen navigasi) dapat diidentifikasi tanpa membaca kata untuk mengidentifikasi atau membandingkan hal-hal tersebut?
- ❑ Jika iya, perhatian orang tersebut dapat secara cepat tergambar pada tampilan yang berhubungan pada waktu tersebut.
- ❑ Contoh : Mana yang termasuk headline? Navigasi? Atau informasi yang dicari?

Screen and Web Page Meaning and Purpose

- ❑ Semua elemen antarmuka (control, teks, pengorganisasian tampilan, semua bentuk, warna, grafik, animasi, pesan, dan feedback) harus memiliki makna untuk pengguna dan melayani tujuan dalam melaksanakan tugas atau memenuhi kebutuhan.
- ❑ Jika elemen tidak memiliki arti bagi pengguna, maka disebut kebisingan dalam antarmuka.
 - ✓ Kebisingan adalah informasi tidak berguna. Sinyal merupakan informasi yang berguna
 - ✓ Kebisingan mengurangi kejelasan layar atau halaman Web
 - ✓ Tujuan dalam desain adalah untuk meminimalkan kebisingan dan memaksimalkan sinyal

Starting Point

- ❑ Menyediakan titik awal yang jelas di sudut layar yang kiri atas.
- ❑ Fokus perhatian pengguna pada bagian yang paling penting dari sebuah layar atau halaman.
 - ✓ Menampilkan Teksual

Melihat dan menampilkan informasi tekstual, biasanya mata satu langkah pertama ke tengah kiri atas layar, dan kemudian dengan cepat bergerak melalui layar searah jarum jam
 - ✓ Menampilkan grafis dan Web

orang mengambil keuntungan dari detail visual seperti ruang putih atau komponen yang menonjol mencolok dari komponen lainnya.
 - ✓ Orang cenderung melihat teks pertama, bukan gambar.

Jenis lebih besar mendominasi tipe yang lebih kecil. Mengubah informasi ditinjau sebelum informasi non-berubah.

Ordering of Data and Content

- ❑ Bagilah informasi ke unit yang logis, bermakna, dan masuk akal.
- ❑ Diatur oleh derajat keterkaitan antara data atau informasi.
- ❑ Memberikan pemesanan unit layar informasi dan unsur-unsur yang diprioritaskan sesuai dengan harapan dan kebutuhan pengguna.
- ❑ Beberapa kemungkinan yang termasuk skema pemesanan (konvensional, urutan digunakan, frekuensi digunakan, fungsi, prioritas, umum ke spesifik)
- ❑ Bentuk kelompok-kelompok yang mencakup semua kemungkinan.
- ❑ Pastikan bahwa informasi yang harus dibandingkan adalah terlihat pada saat yang sama.
- ❑ Pastikan bahwa informasi hanya relatif terhadap tugas-tugas pengguna atau kebutuhan disajikan pada layar.

Ordering Web Pages

- ❑ Menetapkan tingkatan fungsi sangat penting.
- ❑ Tempatkan informasi penting di dekat bagian atas situs Web.
- ❑ Tempatkan item penting di bagian atas halaman.
- ❑ Mengatur informasi secara jelas.
- ❑ Menempatkan item penting secara konsisten.
- ❑ Memfasilitasi pemindaian.
- ❑ Buat Struktur untuk memudahkan dalam membandingkan.

Navigation and Flow

- ❑ Memberikan informasi pemesanan layar dan elemen-elemen yang
 - ✓ memiliki irama, mata membimbing seseorang dalam layar.
 - ✓ Mendorong urutan gerakan alami.
 - ✓ Meminimalkan pointer dan jarak gerakan mata.
- ❑ Tempatkan elemen/control yang paling penting dan paling banyak digunakan di bagian kiri atas
- ❑ Pertahankan aliran dari atas ke bawah dan kiri ke kanan

Navigation and Flow

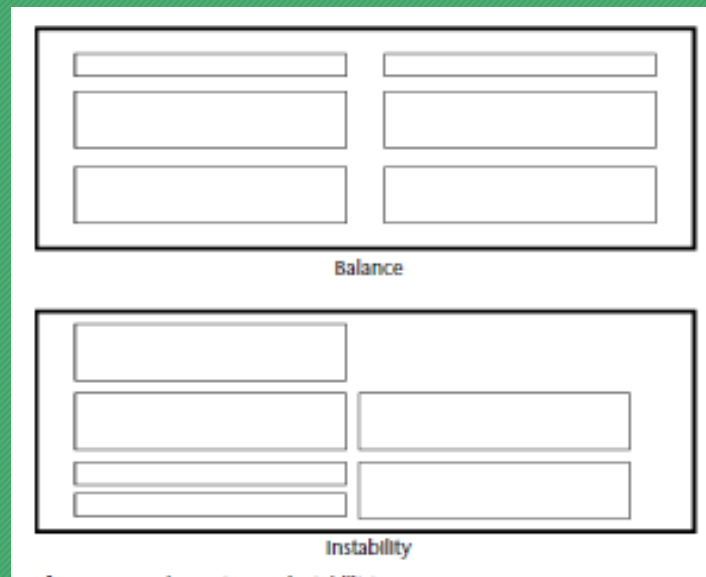
- ❑ Melalui fokus & penekanan, berurutan, perhatian langsung ke item yang
 - ✓ Kritis
 - ✓ Penting
 - ✓ Sekunder
 - ✓ Peripheral
- ❑ Gunakan tab windows dalam order logic dalam menampilkan informasi
- ❑ Tempatkan tombol perintah pada akhir penempatan tab
- ❑ Ketika kumpulan informasi yang berhubungan ditampilkan dalam layar terpisah, sediakan pemisah pada poin arus informasi yang logic dan natural.

Visually Pleasing Composition

- ❑ Memberikan komposisi visual atau estetika yang memiliki kualitas berikut :
 - ✓ Balance
 - ✓ Symmetry
 - ✓ Regularity
 - ✓ Predictability
 - ✓ Sequentiality
 - ✓ Economy
 - ✓ Unity (Kesatuan)
 - ✓ Proportion
 - ✓ Simplicity
 - ✓ Groupings

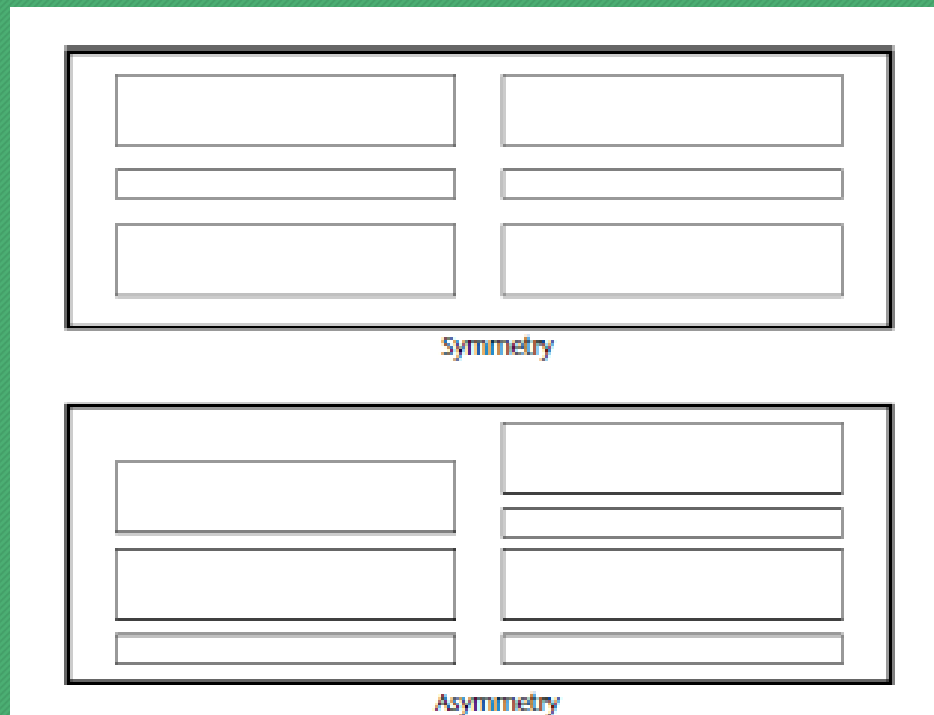
Balance

- ❑ Membuat layar seimbang dengan menyediakan bobot yang sama dari elemen-elemen layar, kiri dan kanan, atas dan bawah.
- ❑ Balance biasanya memperhatikan kesesuaian elemen-elemen yang berbeda warna, ukuran, bentuk agar dapat membentuk tampilan yang baik.



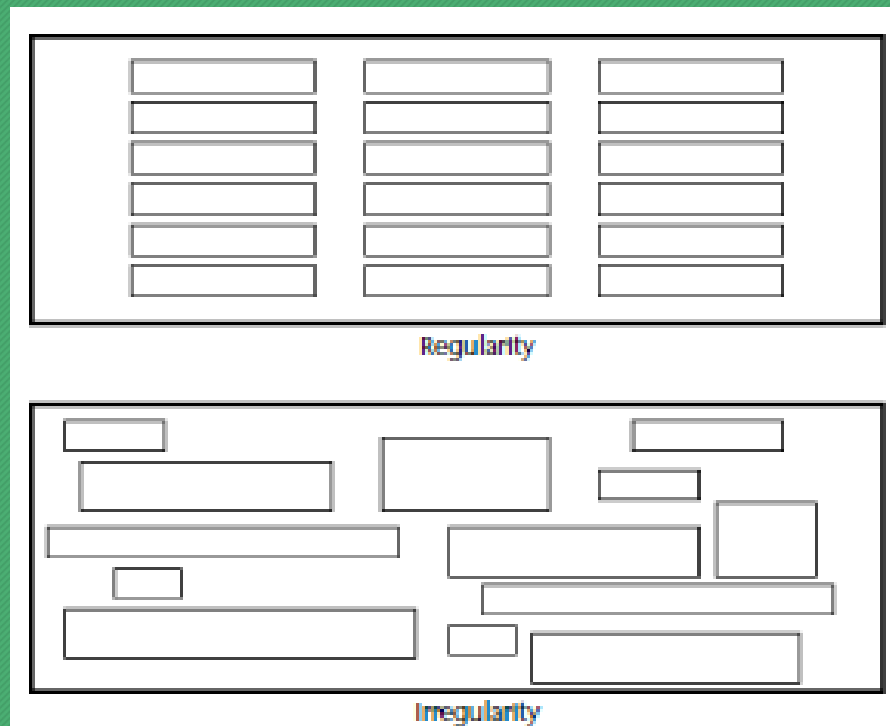
Symmetry

- ❑ Membuat simetris dengan membuat tiruan satu unit di sisi lain tepat sama dengan sisi yang lainnya



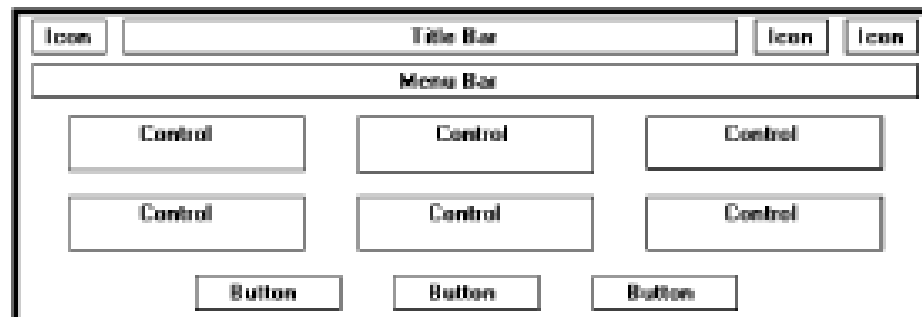
Regularity

- ❑ Membuat regularity dengan menetapkan standar dan jarak yang konsisten antara horizontal dan vertical pada titik yang sejajar

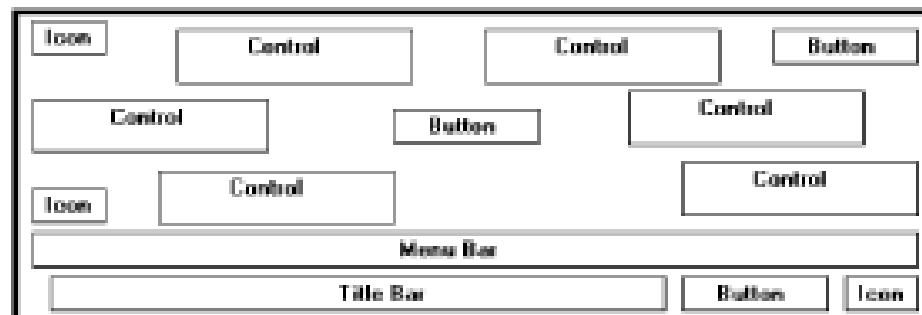


Predictability

- ❑ Membuat dapat diprediksi dengan menjadi konsisten dan mengikuti urutan/penataan konvensional



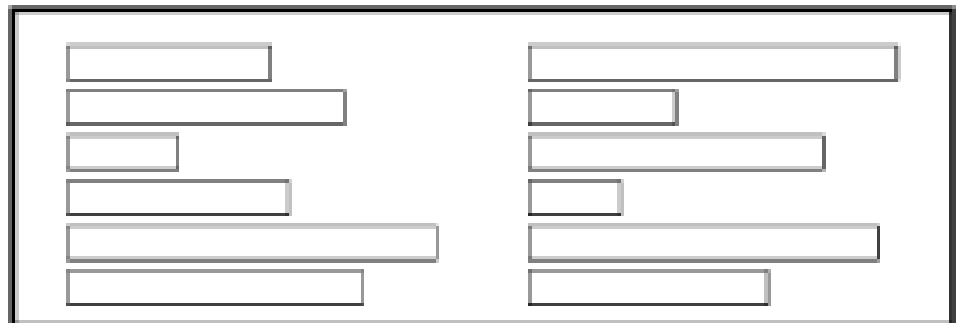
Predictability



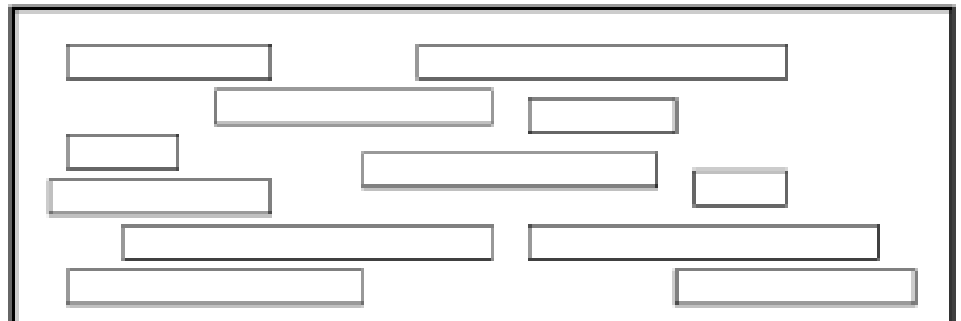
Spontaneity

Sequentiality

- ❑ Menyediakan urutan penataan elemen untuk memandu mata melihat layar lebih kentara, logis, ritme dan efisien
- ❑ Mata cenderung tertarik pada :
 - ✓ Elemen yang lebih terang
 - ✓ Gambar sebelum text



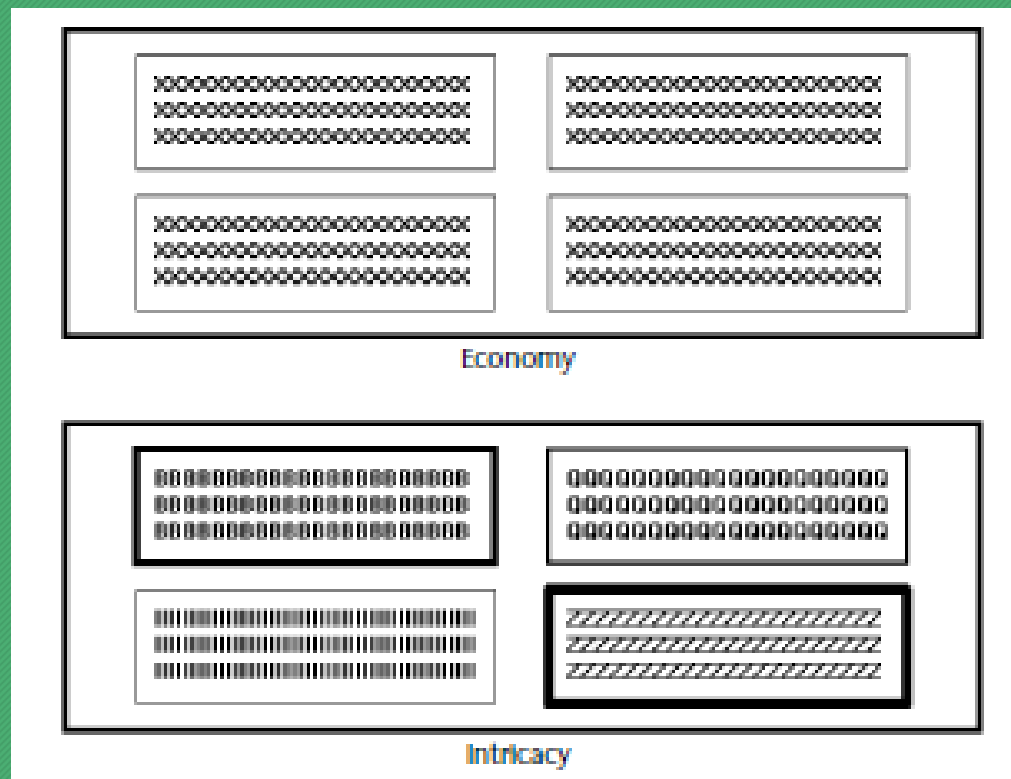
Sequentiality



Randomness

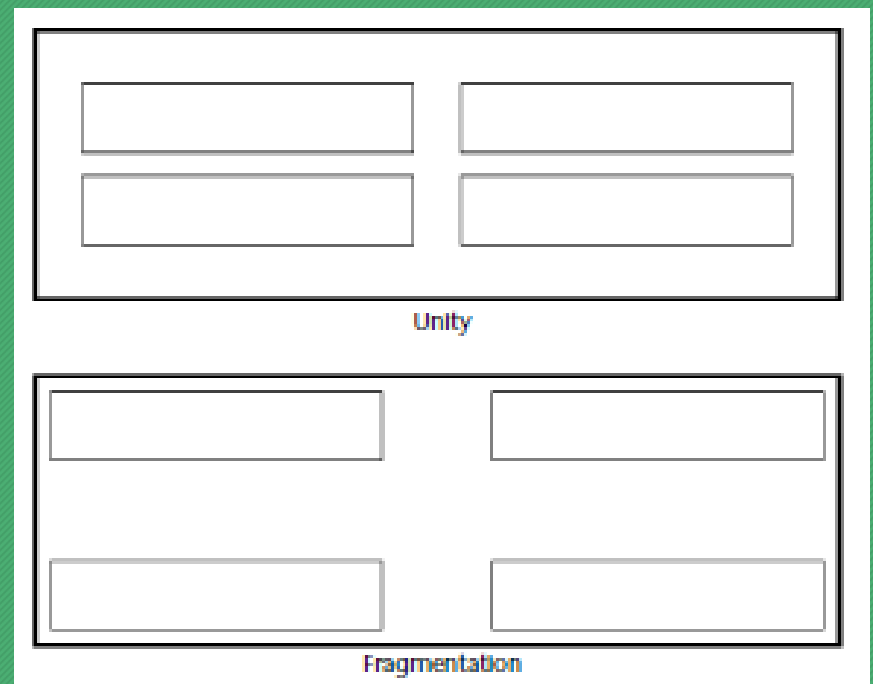
Economy

- ❑ Menyediakan keekonomisan dengan menggunakan beberapa style, teknik penampilan dan warna yang mungkin



Unity

- ❑ Membuat kesatuan dengan
 - ✓ Menggunakan ukuran yang sama, bentuk atau warna untuk informasi yang sesuai
 - ✓ Meninggalkan jarak yang sedikit antara elemen dari layar daripada space di margin kiri



Proportion

- ❑ Membuat window & mengelompokkan data/teks dengan proporsi yang indah

Square
1:1



Square root of two
1:1.414



Golden rectangle
1:1.618



Square root of three
1:1.732



Double square
1:2

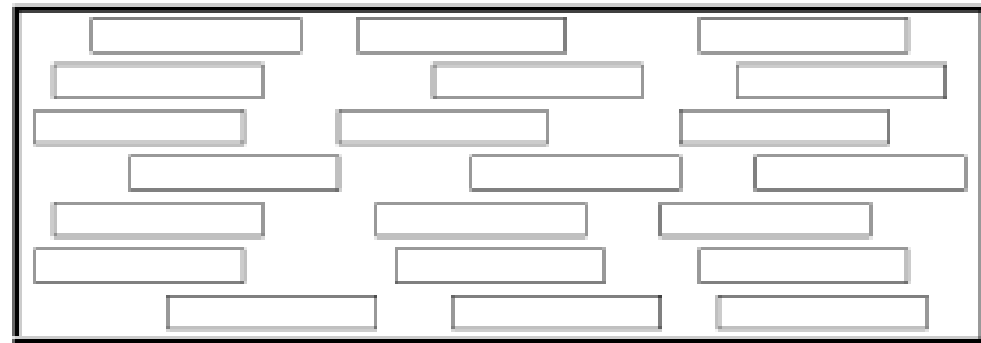


Simplicity

- ❑ Mengoptimalkan jumlah elemen pada layar dengan batasan yang jelas



Simplicity



Complexity

Grouping

- Menyediakan fungsional grup dengan elemen yang berhubungan

| TEST RESULTS | SUMMARY: GROUND |
|---|--------------------|
| GROUND, FAULT T-G | |
| 3 TERMINAL DC RESISTANCE | |
| > | 3500.00 K OHMS T-R |
| - | 14.21 K OHMS T-R |
| > | 3500.00 K OHMS R-G |
| 3 TERMINAL DC VOLTAGE | |
| = | 0.00 VOLTS T-G |
| = | 0.00 VOLTS R-G |
| VALID AC SIGNATURE | |
| 3 TERMINAL AC RESISTANCE | |
| = | 8.82 K OHMS T-R |
| = | 14.17 K OHMS T-R |
| = | 628.52 K OHMS R-G |
| LONGITUDINAL BALANCE POOR | |
| = | 39 DBB |
| COULD NOT COUNT RINGERS DUE TO LOW RESISTANCE | |
| VALID LINE CKT CONFIGURATION | |
| CAN DRAW AND BREAK DIAL TONE | |

Figure 3.12: Original screen, from Tullis (1981), with grouping indicated by bold boxes.

| TIP GROUND 14 K | | |
|-----------------|------------|----------------|
| DC RESISTANCE | DC VOLTAGE | AC SIGNATURE |
| 3500 K T - R | 0 V T - G | 9 K T - R |
| 14 K T - G | 0 V R - G | 14 K T - G |
| 3500 K R - G | | 629 K R - G |
| BALANCE | | CENTRAL OFFICE |
| 39 DBB | | VALID LINE CKT |
| | | DIAL TONE OK |

Figure 3.13: Redesigned screen, from Tullis (1981), with grouping indicated by bold boxes.

Distinctive (Kekhususan)

- ❑ Kontrol layar individu, dan kelompok kontrol, harus memiliki perseptual yang berbeda.
- ❑ Layar kontrol
 - ✓ Sebaiknya tidak menyentuh perbatasan jendela.
 - ✓ Sebaiknya tidak saling menyentuh
- ❑ Field and group borders
 - ✓ Sebaiknya tidak menyentuh perbatasan jendela.
 - ✓ Sebaiknya tidak saling menyentuh.
- ❑ Buttons
 - ✓ Sebaiknya tidak menyentuh perbatasan jendela.
 - ✓ Sebaiknya tidak saling menyentuh
- ❑ Label Tombol tidak harus menyentuh tombol perbatasan.
- ❑ layar elemen berdekatan harus ditampilkan dalam warna atau nuansa kontras yang cukup satu sama lain

Fokus & Emphasis

- ❑ Visually emphasize components
- ❑ Menyediakan focus dengan menggunakan tekanan
 - ✓ Pencahayaan yang terang
 - ✓ Higher brightness.
 - ✓ Reverse polarity or inverse video.
 - ✓ Distinctive Typeface.
 - ✓ Blinking.
 - ✓ Line rulings and surrounding boxes or frames.
 - ✓ Color.
 - ✓ Larger size.
 - ✓ Animation.
 - ✓ Positioning.
 - ✓ Distinctive or unusual shape.
 - ✓ Isolation.

Fokus & Emphasis

- ❑ De-emphasize less important elements.
- ❑ To ensure that emphasized screen elements stand out, avoid
- ❑ Minimize screen clutter.
- ❑ In Web page design
 - ✓ Call attention to new or changed content.
 - ✓ Ensure that page text is not overwhelmed by page background.

Menyampaikan Tingkat Kedalaman atau Tampilan Tiga-Dimensi

- ❑ Gunakan highlighting, shading, dan teknik lain untuk mencapai penampilan tiga-dimensi.
- ❑ Selalu berasumsi bahwa sumber cahaya berada di sudut kiri atas layar.
- ❑ Tampilan command button di atas bidang layar
- ❑ Display screen-based controls on, atau terukir atau diturunkan di bawah, the screen plane.
- ❑ Perspektif jangan berlebihan dan hindari
 - ✓ Menggunakan perspektif untuk elemen noninteraktif.
 - ✓ Memberikan detail terlalu banyak.

Presenting Information Simply and Meaningfully

- ❑ Provide legibility.
 - ✓ Information is noticeable and distinguishable.
- ❑ Provide readability.
 - ✓ Information is identifiable, interpretable, and attractive.
- ❑ Present information in usable form.
 - ✓ Translations, transpositions, and references to documentation should not be required to interpret and understand information.

Presenting Information Simply and Meaningfully

- ❑ Utilize contrasting display features.
 - ✓ To attract and call attention to different screen elements.
- ❑ Create visual lines.
 - ✓ Implicit and explicit, to guide the eye.
- ❑ Be consistent.
 - ✓ In appearance and procedural usage.

Typography

- Font Types and Families, Font Size, Font Styles and Weight, Font Case, Defaults, Consistency, Text Backgrounds

Application and Page Size

❑ *Scrolling and Paging*

❑ *Amount of Information to Present*

- ✓ Present the proper amount of information for the task.
- ✓ Too little is inefficient.
- ✓ Too much is confusing.
- ✓ Present all information necessary for performing an action or making a decision on one screen, whenever possible.
- ✓ People should not have to remember things from one screen to the next.
- ✓ Restrict screen or window density levels to no more than about 30 percent.

❑ *Paper versus Screen Reading*

- ✓ Provide a simple facility for printing out a hard copy of documents

Application Screen Elements

- **Title**
 - **Windows**
 - All windows must have a title located at the top
 - **Web Pages**
 - All Web pages must have titles located in the browser title bar and on the content pages themselves.
 - Browser bar title and page title should be consistent.
 - Titles must be : Descriptive Unique, meaningfully different from other Web pages and Concise.
- **Captions/Labels**
 - Data Fields
 - Control Caption — Data Field Differentiation
 - Control Caption — Data Field Justification
- **Headings**
 - Section Headings
 - Subsection or Row Headings
 - Field Group Headings
- **Special Symbols**
- **Instructions**
- **Completion Aids**
 - Required and Optional Data
- **Lists**
- **Keying Procedures**
 - Keystrokes
 - Tabbing
 - Manual Tab versus Auto Skip
 - Keying Rules
- **Data Output**
 - Reports
 - Tables

Application Screen Elements

First Amount:
Last Amount:
This Amount:
That Amount:
Who Cares Amount:

AMOUNT >> First:
Last:
This:
That:
Who Cares:

Figure 3.21: Providing better control caption discrimination. (The redundant word “amount” is incorporated into a heading.)

Division:
Department:
Title:

Figure 3.26

Division:
Department:
Title:

Figure 3.27

Application Screen Elements

ACCOUNT

| | | | |
|----------------------|----------------------|----------------------|------|
| Number | Name | | |
| <input type="text"/> | <input type="text"/> | | |
| Street | | | City |
| <input type="text"/> | | <input type="text"/> | |
| State | Zip | Telephone | |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | |

OK Apply Cancel

Figure 3.28: Entry screen with captions above single data fields. Captions distinct from data but with poor alignment and organization of fields. Left-to-right orientation and no groupings. Fair readability.

ACCOUNT

| | | | |
|------------------------|---------------|------------|------|
| Number | Name | | |
| HO56787656 | Sandy Schmidt | | |
| Street | | | City |
| 1355 Sleepy Hollow Way | | Kirkland | |
| State | Zip | Telephone | |
| IL | 60146 | 8159999999 | |

OK Apply Cancel

Figure 3.29: Display/read-only inquiry screen maintaining same structure as 3.22. Extremely poor differentiation of captions and data. Crowded look and extremely poor readability.

ACCOUNT

| | | |
|------------|----------------------|-----------------------|
| Number: | <input type="text"/> | OK Apply Cancel |
| Name: | <input type="text"/> | |
| Street: | <input type="text"/> | |
| City: | <input type="text"/> | |
| State: | <input type="text"/> | |
| Zip: | <input type="text"/> | |
| Telephone: | <input type="text"/> | |

Figure 3.36: Entry/modification screen with much better alignment and readability than previous screens. Captions crowd data fields, however. Also, has no groupings and does not maintain post office suggested format for City, State, and Zip.

ACCOUNT

| | | |
|------------|------------------------|-----------------------|
| Number: | HO56787656 | OK Apply Cancel |
| Name: | Sandy Schmidt | |
| Street: | 1355 Sleepy Hollow Way | |
| City: | Kirkland | |
| State: | IL | |
| Zip: | 60146 | |
| Telephone: | 8159999999 | |

Figure 3.37: Display/read-only screen maintaining same aligned structure as 3.36. Captions not very distinctive and poor readability. Again, it looks very dense and crowded.

Application Screen Elements

ACCOUNT

Number:

Name:

Street:

City:

State:

Zip:

Telephone:

OK

Apply

Cancel

Figure 3.38: Entry/modification screen with the better alignment and readability of 3.36. Caption positioned to left, however, resulting in more distinctive data fields. Still no groupings, though, and does not maintain post office suggested format for City, State, and Zip.

ACCOUNT

Number: H056787656

Name: Sandy Schmidt

Street: 1355 Sleepy Hollow Way

City: Kirkland

State: IL

Zip: 60146

Telephone: 815999999

OK

Apply

Cancel

Figure 3.39: Display/read-only screen maintaining same alignment and positioning of captions of 3.38. Captions and data much more distinctive. Still no groupings though, and does not maintain post office suggested format for City, State, and Zip.

ACCOUNT

Number:

Name:

Street:

City/State/Zip:

Telephone:

OK

Apply

Cancel

Figure 3.42: Entry/modification screen identical to 3.40 except that captions for State and Zip are stacked with City, enhancing distinctiveness and readability of the data fields. The screen also achieves a more compact and balanced look. The recommended style for this kind of entry screen.

ACCOUNT

Number: HO 5678 7656

Name: Sandy Schmidt

Street: 1355 Sleepy Hollow Way

City/State/Zip: Kirkland IL 60146

Telephone: (815) 999-9999

OK

Apply

Cancel

Figure 3.43: Display/read-only screen maintaining same alignment, item positioning, and data segmentation as 3.42. Good readability but the lengthy caption City/State/Zip does impinge upon the distinctiveness for the data.

Application Screen Elements

PERSONNEL

Manager:

Employees:

Payroll:

Figure 3.49

- Alternately, headings may be located within a border surrounding a grouping, justified to the upper-left corner.

PERSONNEL

Manager:

Employees:

Payroll:

Figure 3.50

AUTOMOBILE

Driver

License Number

Figure 3.54

Type for changes only.

Kind:

Model:

Number:

Figure 3.56

- Using a mixed-case font.

Application Screen Elements

Completion Date: / / (MM/DD/YY)

Frequency: (D, W, M, Y)

Figure 3.57

Europe's Capital Cities

Amsterdam

Berlin

Brussels

Lisbon

Figure 3.59: A List Heading.

| ARRAY LIKE THIS: | NOT LIKE THIS: | | | |
|------------------|----------------|--------|----------|--------|
| Amsterdam | Amsterdam | Berlin | Brussels | Lisbon |
| Berlin | London | Madrid | Paris | Vienna |
| Brussels | | | | |
| Lisbon | | | | |
| London | | | | |
| Madrid | | | | |
| Paris | | | | |
| Vienna | | | | |

Figure 3.58: List Formats.

Application Screen Elements

■ Report Body

- Provide clear column headings.
- Show units of measurement.
- Use the right fonts.
- Clearly identify rows.
- For a body that is too wide:
 - Let users move or resize the columns.
 - Wrap information in a column of cells.
- Break up pages logically.

■ For headers:

- Minimally include:
 - Print date.
 - What or whom the report is for.
 - Title.
- Consider including:
 - Report or file parameters.
 - Print or retrieval time.
 - Logo and other organization identity items.

■ For footers:

- Minimally include:
 - Current Page Number.
- Consider including:
 - Number of pages in report.
 - Print date (if not in the header).
 - Data source (file, database or table name).
 - Report format name.
 - URL or other location information.
 - Legal information.
- Repeat at the bottom of every page.

Table 3.1: A Table

EUROPEAN UNION NEW MEMBER STATES IN 2004

| COUNTRY | CAPITAL | GOVERNMENT | POPULATION | AREA (SQ.ML) |
|----------------|----------|------------|------------|--------------|
| Czech Republic | Prague | Republic | 10,320,000 | 30,450 |
| Estonia | Tallinn | Republic | 1,450,000 | 17,413 |
| Hungary | Budapest | Republic | 9,963,000 | 35,920 |
| Latvia | Riga | Republic | 2,452,000 | 24,595 |

Table 3.2: A Table with Wrapped Cells

EUROPEAN UNION NEW MEMBER STATES IN 2004

| COUNTRY | CAPITAL | GOVERNMENT | POPULATION | LANGUAGES |
|----------------|----------|------------|------------|-----------------------------------|
| Czech Republic | Prague | Republic | 10,320,000 | Czech, Slovak |
| Estonia | Tallinn | Republic | 1,450,000 | Estonian, Russian |
| Hungary | Budapest | Republic | 9,963,000 | Hungarian |
| Latvia | Riga | Republic | 2,452,000 | Latvian, Russian |
| Lithuania | Vilnius | Republic | 3,639,000 | Lithuanian, Russian, Polish |

Organization & Structure Guidelines

- ❑ *Information Entry and Modification (Conversational) Screens*
 - ✓ Grids
- ❑ *Text Entry from a Source Document*
 - ✓ Dedicated Source Document Screens
- ❑ *Display/Read-Only Screens*
 - ✓ Organization
 - ✓ Data Presentation
 - ✓ Data Arrangement
 - ✓ Data Justification
 - ✓ Data Display

Organization & Structure Guidelines

~~330302345~~ ~~072179~~ ~~162152~~
330-30-2245 07/21/79 16:21:52

Figure 3.64

- Format common items consistently.
- For data strings of five or more numbers or alphanumeric characters with no natural breaks, display in groups of three or four characters with a blank between each group.

~~K349612094~~ K349 612 094

Figure 3.65

- Left-justify text and alphanumeric formats.

Name: ~~Bill Watters~~ Name: Bill Watters
Street: ~~612 Hidden Valley~~ Street: 612 Hidden Valley

Figure 3.66

- Right-justify lists of numeric data.

| | | | |
|--------------|-----------------------|--------------|------------|
| Charge: | 645,194.00 | Charge: | 645,194.00 |
| Federal Tax: | 19,235.16 | Federal Tax: | 19,235.16 |
| State Tax: | 5,204.03 | State Tax: | 5,204.03 |
| Local Tax: | 1.24 | Local Tax: | 1.24 |
| Total Cost: | 669,635.31 | Total Cost: | 669,635.31 |

Figure 3.67

- Create a data “ladder.”

| | | | |
|-----------|--------------------|-----------|---------|
| Tree: | Pine | Tree: | Pine |
| Age: | 14 | Age: | 14 |
| Number: | 422,598 | Number: | 422,598 |
| Class: | C | Class: | C |
| Location: | NW | Location: | NW |

Figure 3.68

Organization & Structure Guidelines

~~330302345~~ ~~072179~~ ~~162152~~
330-30-2245 07/21/79 16:21:52

Figure 3.64

- Format common items consistently.
- For data strings of five or more numbers or alphanumeric characters with no natural breaks, display in groups of three or four characters with a blank between each group.

~~K349612094~~ K349 612 094

Figure 3.65

- Left-justify text and alphanumeric formats.

Name: ~~Bill Watters~~ Name: Bill Watters
Street: ~~612 Hidden Valley~~ Street: 612 Hidden Valley

Figure 3.66

- Right-justify lists of numeric data.

| | | | |
|--------------|-----------------------|--------------|------------|
| Charge: | 645,194.00 | Charge: | 645,194.00 |
| Federal Tax: | 19,235.16 | Federal Tax: | 19,235.16 |
| State Tax: | 5,204.03 | State Tax: | 5,204.03 |
| Local Tax: | 1.24 | Local Tax: | 1.24 |
| Total Cost: | 669,635.31 | Total Cost: | 669,635.31 |

Figure 3.67

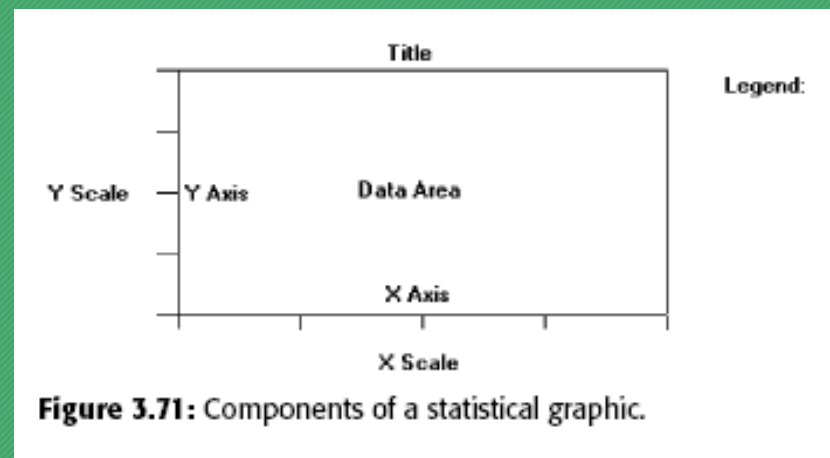
- Create a data “ladder.”

| | | | |
|-----------|--------------------|-----------|---------|
| Tree: | Pine | Tree: | Pine |
| Age: | 14 | Age: | 14 |
| Number: | 422,598 | Number: | 422,598 |
| Class: | C | Class: | C |
| Location: | NW | Location: | NW |

Figure 3.68

Statistical Graphics

- ❑ Grafik statistik adalah data yang disajikan dalam format grafis.
- ❑ Grafik statistik harus memiliki kualitas sebagai berikut:
 - ✓ Tujuan dan penggunaan grafik harus jelas.
 - ✓ Jenis grafik harus dikenali.
 - ✓ Jenis grafik harus membantu pengguna memahami data yang lebih mudah.
 - ✓ Data harus diformat dan disajikan dengan benar.
 - ✓ Data harus diformat dan disajikan untuk audiens yang menggunakan
 - ✓ Grafik harus menghindari distorsi dengan menceritakan kebenaran tentang data.
- ❑ *Components of a Statistical Graphic* : axes, scales, an area, a title and a legend or key,
- ❑ *Data Presentation*
- ❑ *Axes*
- ❑ *Scales and Scaling*
- ❑ *Proportion*
- ❑ *Lines*
- ❑ *Labeling*



Types of Statistical Graphics

- ❑ **Curve and Line Graphs** : can be used to show relationships between sets of data defined by two continuous variables.
- ❑ **Surface Charts** :If the data being depicted by a curve or line represents all the parts of a whole, consider developing a *surface* or *area chart*,
- ❑ **Scatterplots** : can be used to show relationships among individual data points in a two-dimensional array.
- ❑ **Bar Charts** : can be used to show a few differences between separate entities or to show differences in a variable at a few discrete intervals.
- ❑ **Segmented or Stacked Bars** : If both the total measure of a value and its component portions are of interest, consider using *segmented* or *stacked bars*.
- ❑ **Pie Charts** :can be used to show an apportionment of a total into its component parts

Types of Statistical Graphics

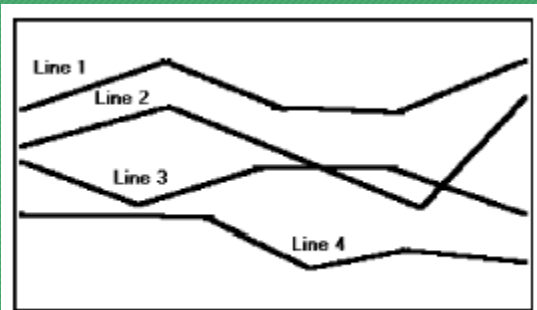


Figure 3.76: A line graph.

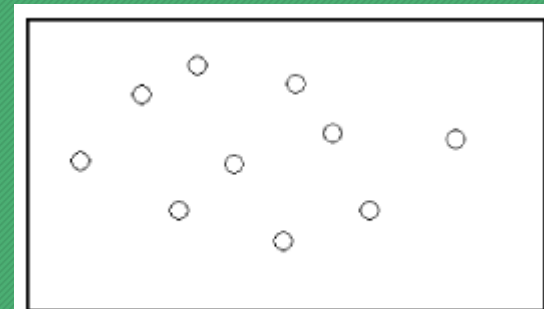


Figure 3.78: A scatterplot.

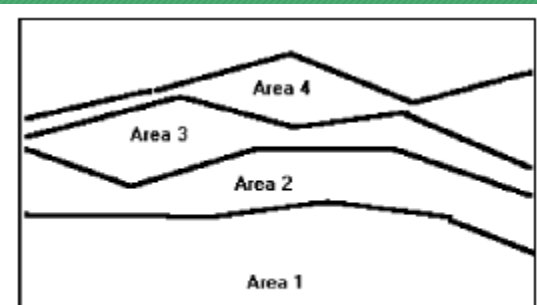


Figure 3.77: A surface chart.

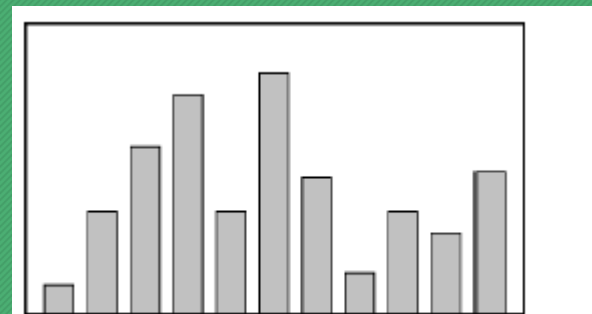


Figure 3.79: A bar chart with a common origin point.

Types of Statistical Graphics

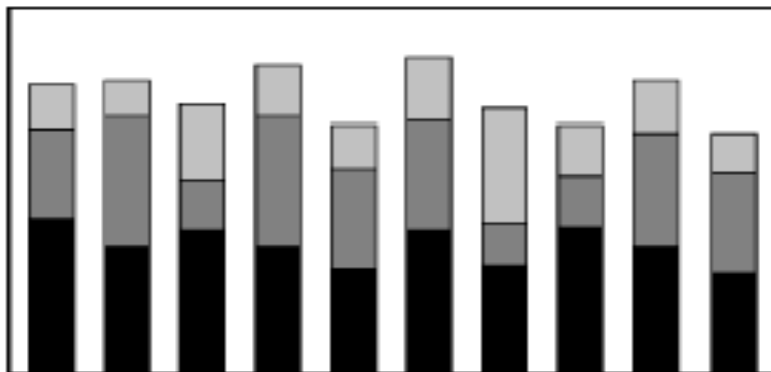


Figure 3.82: A segmented, or stacked, bar graph.

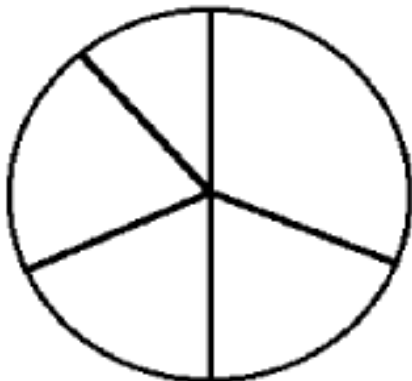


Figure 3.83: A pie chart.

Table 3.4: Tasks and Best Types of Graphs

| | PROPORTION | | | |
|---------|----------------|----------------|----------------|----------------|
| | WITH SCALE | WITHOUT SCALE | COMPARISON | CHANGE |
| Best | Line Graphs | Segmented Bars | Bar Graphs | Line Graphs |
| | Bar Graphs | Pie Charts | Segmented Bars | Bar Graphs |
| | Segmented Bars | | | |
| | Pie Charts | | | |
| Poorest | — | Bar Graphs | Pie Charts | Segmented Bars |
| | Line Graphs | Pie Charts | | |

Source: Hollands and Spence (1992) and Simkin and Hastie (1987).

Technological Consideration in Interface Design

- **Graphical Systems**
 - Screen design must be compatible with the capabilities of the system, including
 - System power.
 - Screen size.
 - Screen resolution.
 - Display colors.
 - Other display features.
 - Screen design must be compatible with the capabilities of the
 - System platform being used.
 - Development and implementation tools being used.
 - Platform style guide being used.
- *System Power*
- *Screen Size*
- *Screen Resolution*
- *Colors*
- *Other Display Features*
- *Platform Compatibility*
- *Development and Implementation Tool Compatibility*
- *Style Guide Compatibility*