Computer Applications

Basic Charts in Microsoft Excel

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Basic Charts

- Data visualization

- Basic chart types (Column, Line, Pie, Bar)

- First steps

  - selecting data

  - inserting a chart

Basic Charts

Charts allow us to:

- quickly spot trends and comparisons

- visually present relationships (growth/decline, distribution, etc.)

- explain results more easily to a "non-technical" audience

- highlight key values (minimum/maximum, peak in a series, etc.)
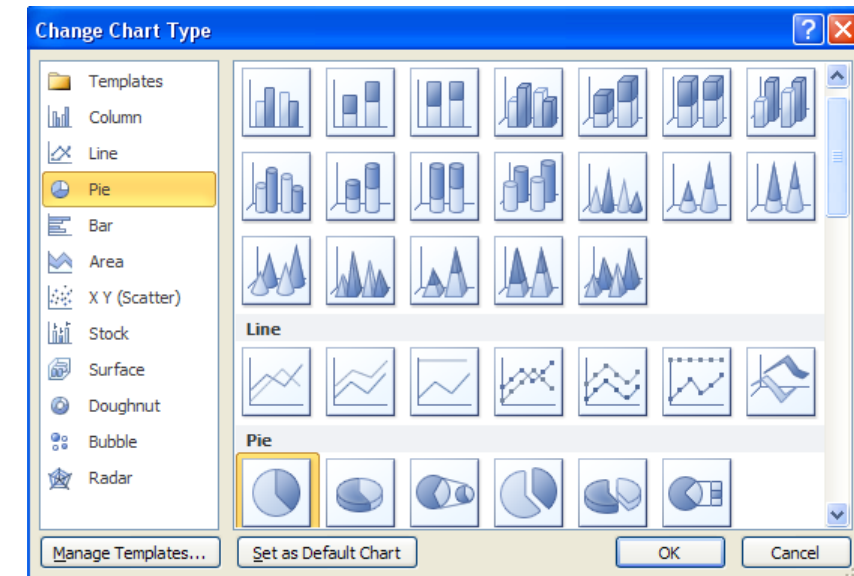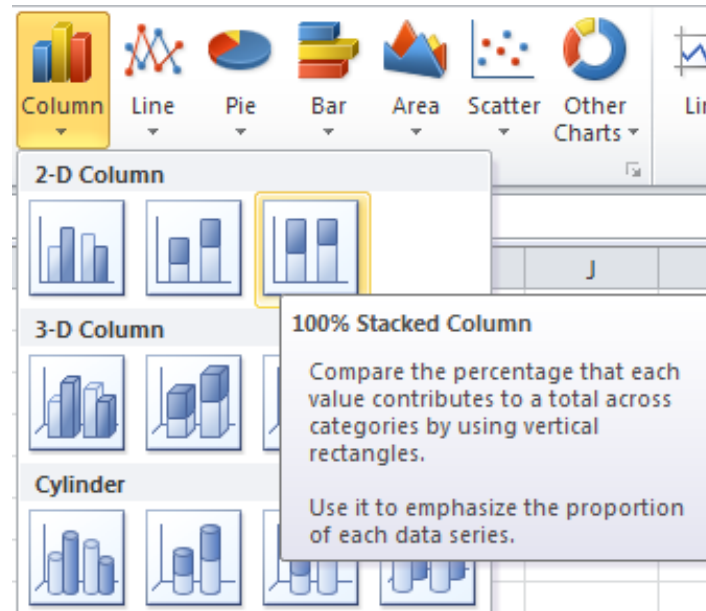
Basic Charts

- Data should be in a clear table

  - first row – headers (e.g. "Month", "Units Sold")

  - each column – one data type

  - each row – one "observation" (e.g. one month/item/student)

- No empty rows/columns inside the table

- Values shown in the chart must be numbers

  - not "10 pieces", but just 10
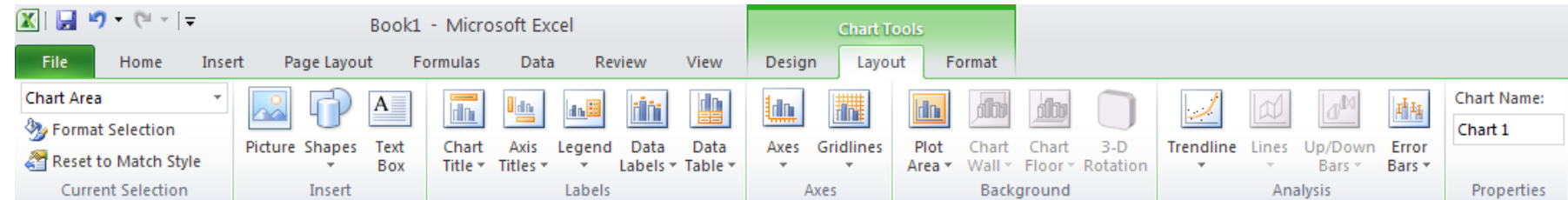
Basic Charts

Basic chart types

- **Column**
  - comparing magnitudes across categories (sales by product, by month, etc.)
- **Bar**
  - similar to column, but horizontal
  - useful when you have many categories/long labels
- **Line**
  - showing change over time (trend by months/years, etc.)
- **Pie**
  - showing the breakdown of a whole into parts (percentages by category)

Basic Charts

Chart elements

- Chart Area – the entire chart region
- Plot Area – the area where the columns/lines/pie slices are drawn
- Series – a data series (e.g. "Sold 2024", "Sold 2025")
- Category axis (X-axis) – categories (months, products, etc.)
- Value axis (Y-axis) – numeric values
- Legend – explains which color/line represents which series
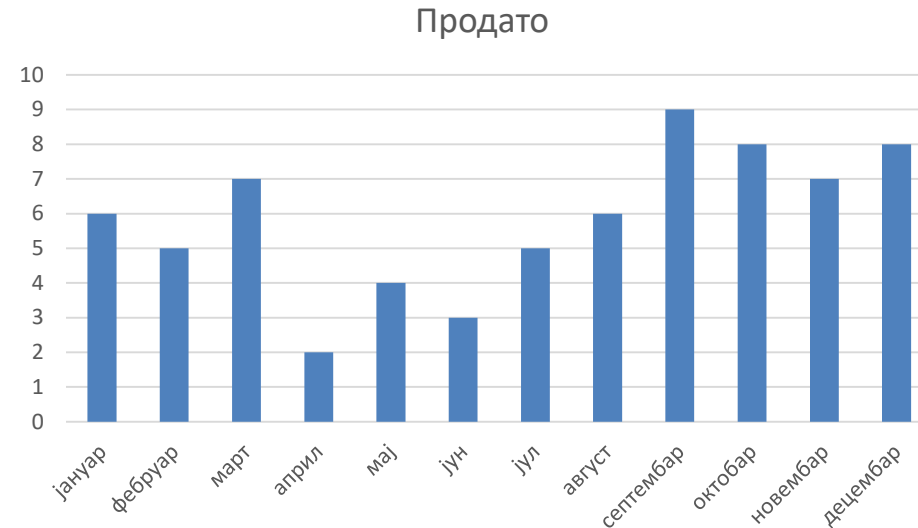- Chart Title / Axis Titles – chart title and axis labels

Basic Charts

Продато

Column chart

- Select the data range (e.g. A1:B13 – "Month" and "Sold")
- Tab Insert → group Charts → Column
- Choose type: Clustered Column (basic)
- Excel creates the chart as an embedded object on the same sheet

If needed, move the chart (drag & drop) or change its size (handles on the edges)

Basic Charts

Line chart

- Most often used for time-based data (time series)
  - sales by months
  - temperature by days
  - number of students by year of entry
- Steps are similar to the column chart:
- select the range
- Insert → Line
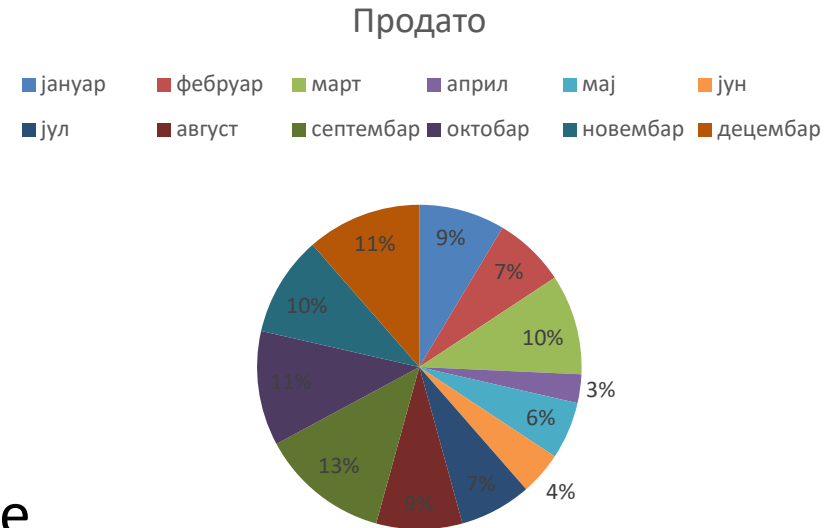- choose the basic Line chart

Продато
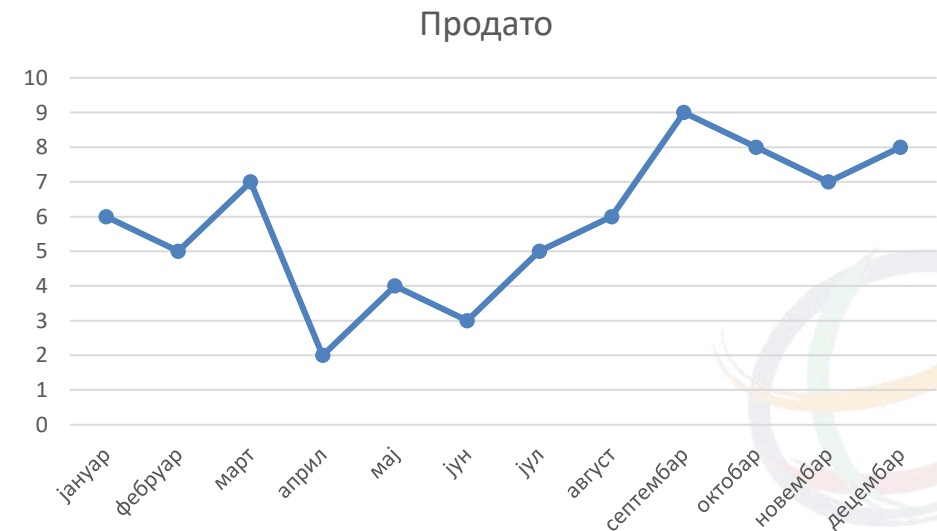
Basic Charts

Pie chart

- Shows the shares (percentages) of parts in a whole

- Suitable when we have a relatively small number of categories (approx. 3–7)

- Steps:

  - select one column with categories and one with numbers

  - Insert → Pie

  - choose the basic Pie

Be sure to add Data Labels (percentages) so the chart is readable

Exercise

Initial table: *"Prodaja"* ("Sales")

- (columns: item, quantity, total price, …)

Task:

- Create a column chart of quantity by item
  - columns: Item, Quantity
- Create a line chart of total sales by items (if there is a logical order)
- Create a pie chart of each item's share in total sales
  - use total price and format Data Labels as percentages
- Place the three charts one below the other and compare which one best conveys the sales message
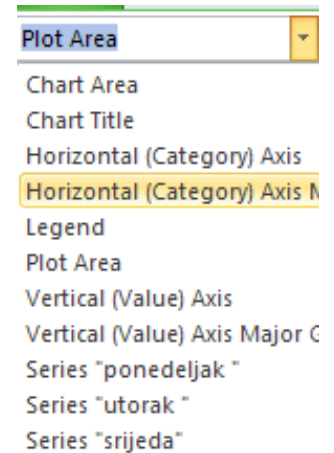
Basic Charts

Select Data

- When the chart is selected:
  - right-click → Select Data…
- You can:
  - change the data range
  - add/remove series
  - change the order of series
  - use Switch Row/Column – swap the role of rows and columns as series/categories
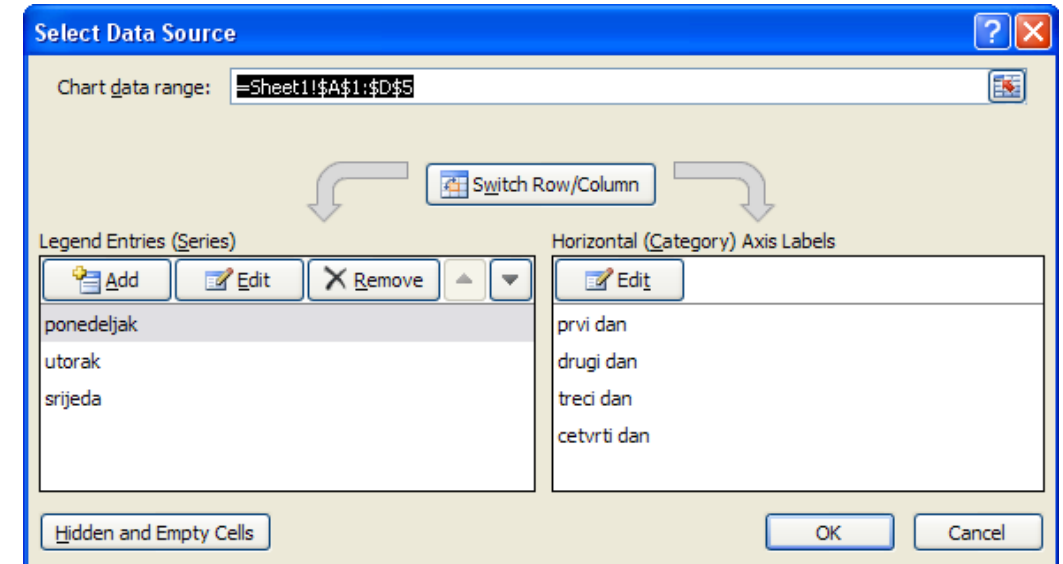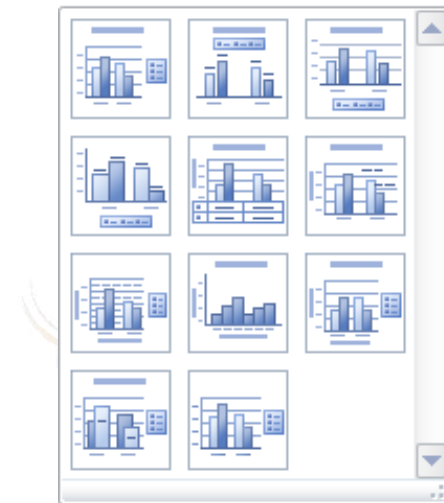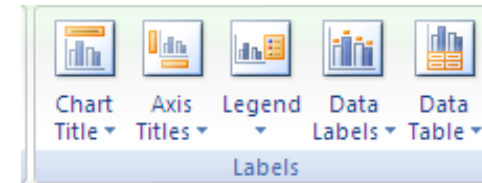
Basic Charts

Adding/changing titles and axis labels (Chart Title and Axis Titles)

- When the chart is selected
    - the Chart Tools appear on the Ribbon
    - Design / Layout / Format – depending on the version
- Chart Title
    - button Add Chart Element (or Layout → Chart Title)
    - set a title that clearly describes what the chart shows
- Axis Titles (X and Y)
    - e.g. X-axis: "Month", Y-axis: "Units Sold"
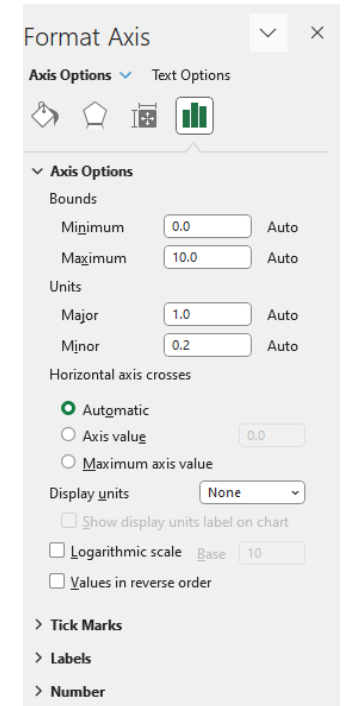
Basic Charts

- Legend and Data Labels

- **Legend**
  - shows which color/line belongs to which series
  - can be moved (top, bottom, left, right)

- **Data Labels**
  - show the exact value on a column/line/pie slice
  - useful for pie charts or when we want precise values

- Example:
  - Pie chart – Data Labels = percentage + category name

Basic Charts

Formatting axes (Axis Options)

- Right-click on the axis → Format Axis

- Possible changes
  - Minimum and Maximum (axis range)
  - units (Major/Minor unit)
  - number format (Number – e.g. currency, percentage, no decimals)
  - text angle and alignment
- Examples:
  - scale from 0 to 100 with step 10
  - showing millions (divide values by 1,000,000 and indicate "million" in the Axis Title)
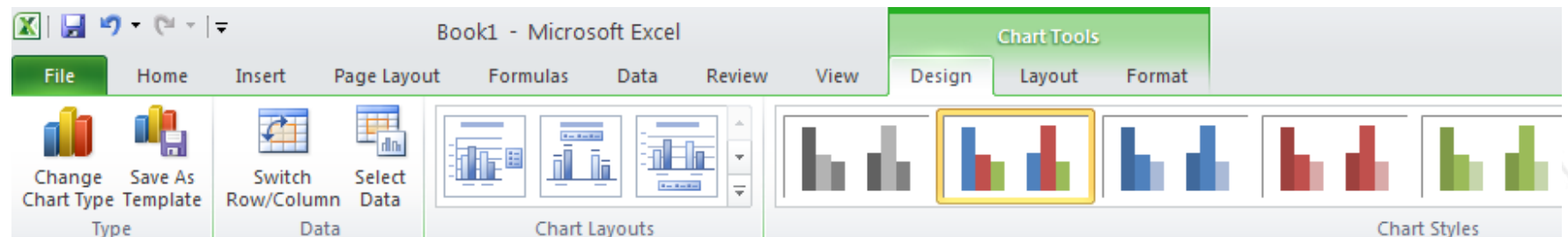
Basic Charts

Chart Styles and Layout

- Chart Styles
  - predefined styles (colors, background, gridlines)
- Layout (Add Chart Element / Quick Layout)
  - quickly add/remove titles, legend, Data Labels, gridlines

- Guidelines
  - avoid "overly colorful" styles
  - ensure good contrast (so everything is clearly visible on a projector/print)

Basic Charts

Placing charts in the document

- Moving
  - grab the chart with the mouse and drag
- Resizing
  - drag the corners/sides
- Move Chart (right-click → Move Chart…)
- As Object in (on the same sheet, next to the table)
- New Sheet (chart on a separate sheet – "Chart Sheet")
- Uses
  - a separate Chart Sheet for the "main" report chart
  - embedded charts next to the table for quick checking

Basic Charts

How to choose the right chart type?

- comparing values across categories → Column/Bar

- showing a trend over time → Line

- showing the structure of a whole → Pie

Exercise

Editing charts – starting point: charts from Exercise 1 ("Prodaja")

Task

- For the column chart:
  - add Chart Title and Axis Titles
  - format the Y-axis to have no decimals
  - change the chart style to one of the suggested Chart Styles
- For the pie chart:
  - add Data Labels that show both category name and percentage
  - move the legend to the bottom/right
- Move one of the charts to a separate Chart Sheet and compare the display

Exercise

Initial table **"Studenti"** ("Students") (from the lesson on formulas)

Task:

- Create a column or line chart that shows results by students or by tests
- Create a pie chart that shows the distribution of students by status
  - e.g. "Passed" / "Not passed"
- Edit the charts so that they:
  - have meaningful titles and axis labels
  - have clearly visible legends and labels
  - do not contain unnecessary "decorative" elements

Questions & Answers

Network of centers for regional short study programs in the countries of the Western Balkans

Call: ERASMUS-EDU-2023-CBHE

Project number: 101128813