

# Applications Programming

Introduction to Excel Advanced

# Formula

- Purpose of formula
- Syntax difference between formula and raw data
- Semantic difference

# Cell Reference

- Purpose — Whenever possible, use references rather than values in formulas.
- You can type a cell or range reference into a formula, or you can click on the cells you want to reference to add them into a formula.
- Relative vs Absolute cell references
  - A relative cell reference is the address of a cell relative to the cell the reference is in.
  - An absolute cell reference is the exact location of a cell. (Using dollar sign to indicate an absolute reference)
  - You can also use a mixed cell reference, where either the column or row reference is absolute, while the other reference remains relative.
- Cell reference, by itself, is a formula
- Cell reference can be part of a formula

# Formula Expression

- All formulas begin with an equal sign.
- Formulas can contain any combination of values, references, operators and functions.
- Formulas are not case sensitive.
- Basic Mathematical Operators that can be used in formulas include: Addition (+), Subtraction (-), Negation (-), Multiplication (\*), Division (/), Exponential (^), Percentage (%).
- The order of evaluating the operators (from highest to lowest order) is:
  - Expressions in parentheses
  - Negation
  - Percentages
  - Exponentials
  - Multiplication and division
  - Addition and subtraction

# Excel Functions

- A function is a predefined formula for making a specific kind of calculation.
- Using functions makes it quicker and easier to write formulas. (example: SUM)
- Each function has two main parts:
  - The function name determines what the function does.
  - The arguments determine what values or cell references the function should use in its calculation.
- Ways to enter a function:
  - By typing
  - By typing and clicking
  - By using the Insert Function dialogs located in the Formulas ribbon

# Categories of Functions

- Open the Formulas ribbon to view a collection of the functions available
- Math & Trig functions: perform standard mathematical and trigonometric calculations.
- Statistical functions: to perform (complex) statistical analyses.
- Financial functions: to calculate depreciation, evaluate investment opportunities, and calculate the payments on a loan.
- Logical functions: to evaluate conditions and act accordingly.
- Date and Time functions: to work with dates and times.
- Text functions: to extract, convert, concatenate, and get information about text data.
- Lookup & Reference: to find specific valued data

# Pivot table

- Purpose: summarize from detailed data
- Create
- Delete

# Visual Presentation — Charts

- A chart is a graphic presentation of data.
- To insert a chart:
  - Select the data to be included in the chart.
  - Click Insert, then Charts.
  - Select the chart type.
- Chart Elements:
  - Chart Title
  - Axis Title
  - Legend
  - Data Labels
  - Axes
  - Plot Area