Excel Advanced Functions and Large Datasets – Recitation 13

1) **Download Example3.xlsx**
2) **Enter your name in B1 and today's date using the TODAY() function in B2**
3) **PMT function:**
   a. PMT(rate, nper, pv)
      i. Rate: interest rate for the loan
      ii. Nper: total number of payments for the loan
      iii. Pv: present value, or the total amount that a series of future payments is worth now; the principal value
   b. The parameters related to the number of periods (nper) and rate should be expressed using the same time scale: usually both in monthly units. A conversion may be needed for the rate which is usually expressed in annual terms. In this case, divide the annual rate by 12. If the annual number of payments is a parameter given in a cell, divide the annual rate by that cell coordinate instead.
4) **VLOOKUP function:**
   a. VLOOKUP(lookup_value, table_array, col_index_num)
      i. Lookup_value: the value that you want to look up
      ii. Table_array: the "dictionary" that you want to use for lookup
      iii. Col_index_num: the column number in table_array which the matching value must be returned
   b. Look at the Gradebook spreadsheet for reference! (Grade and Comment columns)
5) **Insert a column chart in the Gradebook sheet using the student and their points.**
   a. Select chart range (A1:B12) and click insert chart from the Insert tab
   b. Select chart type (press and hold to see preview)
   c. Switching between data series in rows and columns: 'Design' tab -> 'Switch Row/Column'
   d. In Layout tab:
      i. Title: "Students' Grades"
      ii. Axis titles: "Points" on yaxis and "Student Name" on xaxis
      iii. Legend: move to bottom
      iv. Data Labels: center
      v. Data Table: show data table
6) **Sorting (Use Flowershop sheet)**
   a. Select any cell of the dataset -> Data tab -> Sort icon
   b. Click on E4 (need to reorder), click sort by ascending. Then sort 'Net Income' by descending

7) Extracting data (queries) (Select any cell of the dataset -> Data tab -> Filter)

    a. You can use criteria to extract all the records that match your criteria and then use the extracted data in other parts of your sheet

    b. Auto Filter (Using Gradebook)
        i. Click on the Filter button
        ii. Arrows will show up by your column names; click on the arrow for 'Points' and go to 'Number filters' -> 'Equals'; type in 90 and hit OK. Only Bob should show up.
        iii. Clear filter after applied.
        iv. Can apply up to 2 conditions per field (AND, OR)

    c. Subtotals (Using Flowershop)
        i. Select any cell of the dataset -> Data tab -> Subtotals icon
        ii. At each change in: Flower
        iii. Use function: Sum
        iv. Add subtotal to: Select Gross Income

8) Pivot Tables (Use Sales sheet)

    a. Pivot tables make possible to present data in a structured manner. It's an interactive table that automatically extracts, organizes, and summarizes your data. You can use this report to analyze the data, make comparisons, detect patters and relationships, and discover trends.

    b. Select the data for the PivotTable
        i. Click anywhere inside the dataset OR
        ii. Select all data (Ctrl-Shift-*)

    c. Creating the PivotTable
        i. Click on the Insert tab -> Pivot table icon
        ii. The "Create PivotTable" window will be displayed. Just click OK to accept the selections provided

    d. Using the PivotTable screen
        i. On the right side of the PivotTable screen (Pivot Table Filed List), click on Country.
        ii. Then click 'Order Date', 'Salesperson', and 'Order Amount' in that order.
        iii. ORDER MATTERS!

    e. Grouping the dates
        i. The data on the left looks disorganized. The dates need to be grouped to make sense of the data selected
        ii. Click on any date
        iii. Click on 'Group Selection'
        iv. On the Grouping window, select 'Years'. The dates are fixed and the data selection looks organized

  f. Collapsing and Expanding data
    i. Click on any year inside the data
    ii. In the "Active Field" group (Options tab) click on "Expand Entire Field" (small green cross)
    iii. Then, click "Collapse Entire Field" (small red dash)
    iv. The data is now summarized by year
  g. Creating a Pivot Chart
    i. Click on Pivot chart (on the ribbon, Options tab)
    ii. The Insert Chart window will be displayed. Select a chart format.
    iii. A chart with the selected format will be displayed, and you can use usual formatting to refine the chart.
    iv. Close the auxiliary windows such as Pivot Chart Filter Pane and Pivot Table Field List.

9) Tables
  a. Tables provide filtering and sorting capabilities for all columns
  b. Open the Transactions spreadsheet
  c. Select the data for the Table
    i. Click anywhere inside the dataset
  d. Creating the Table
    i. Click on the Insert tab
    ii. Click on Table icon
    iii. The "Create Table" window will be displayed. Click OK to accept the selections provided.
  e. Using the Table
    i. All headers will now have an arrow that provide Filtering and Sorting capabilities (Note: To see the arrows the first row must be visible)
    ii. Example: We need to select the records related to Germany for Net Sales between 200 and 500 dollars. This selection should be sorted by Product Name. Steps:
      1. Click on the ShipCountry arrow and deselect all items (Uncheck Select All) and select only Germany
      2. Click on the NetSales arrow and rather than dealing with individual numbers, we will use the Number Filters option
      3. On the small menu displayed, click on "between" and enter 200 and 500 in the two boxes
      4. Click on the ProductName arrow and sort from A to Z