Excel Examples: Hypothesis analysis

1. {Data table} Consider sheet **[17-AH.xlsx | Exmp01]** that simulates a loan calculator.

   1.1. Build a data table that allows analysing the monthly payments if the EURIBOR rate variates between 4% and 6% with intervals of 0,250%

   1.2. Build a new data table that allows analysing the monthly payments if the EURIBOR rate variates between 4% and 6% with intervals of 0,250% and considering different times: 25, 30, 35 and 40 years.

2. {Scenarios and Goal Seek} Consider sheet **[17-AH.xlsx | Exmp02]**.

   2.1. Build three scenarios that allow analysing and evaluating the impact of the variation in cell K14 on the results. The three scenarios are the following
   - Scenario “EURUSD atual”: value 1,4787
   - Scenario “EURUSD Val. EURO”: value 1,5400
   - Scenario “EURUSD Val. DOLAR”: value 1,4200

   2.2. Change the value in scenario “EURUSD Val. DOLAR” to 1,4500

   2.3. Remove the scenario “EURUSD atual”

   2.4. Create the scenario “EURUSD atual” with the value 1,4787

   2.5. Create a scenario summary to analyse the impact on cells K12 and L12

   2.6. Determine which should be the EURUSD rate so that “Statistical Market Neutral” is more than 0

3. {Solver} A hat manufacturer, in order to make better use of its personnel and machinery, intends to produce two new types of luxury hats: bowler hats and top hats, whose expected profit will be €10 and €20 per unit, respectively. The time required for the production of each topper is 20 hours and each top hat is 30 hours. Knowing that the total available hours is 1200 and that the expected demand is 40 units/year of toppers and 30 units/year of top hats, it is intended to determine how many units of each type of hat the company should produce in this way. to maximize your profit. Solve this in **[17-AH.xlsx | Exmp03]** using solver and generating a response report. To simplify the problem, consider the following problem formulation:

Objective:	Maximise profit
Variables:	• Production (nr) of bowler hats (variable X) • Production (nr) of top hats (variable Y)
Objective function:	Maximise the expression 10*X+20*Y
Constraints:	1) 20*X+30*Y<=1200, related to the available production time 2) X<=40, related to the bowler hat demand 3) Y<=30, related to the top hat demand 4) X>=0, the nr of bowler hats produced must be greater than 0 5) Y>=0, the nr of top hats produced must be greater than 0