# How to Use Solver in Excel for Ad Placement Optimization

This guide explains how to use the Excel Solver to maximize advertising revenue for Burger King and Wendy’s ad placements.

## Step 1: Enable Solver Add-in

* Go to File → Options → Add-ins
* In the “Manage” box at the bottom, select 'Excel Add-ins' and click Go
* Check the box for 'Solver Add-in' and click OK

## Step 2: Open Solver

* Go to the 'Data' tab in the Excel ribbon and click 'Solver' (usually at the far right).

## Step 3: Set the Solver Parameters

* Set Objective: Select the cell that contains Total Revenue (e.g., cell C39 or similar) To: Max  
  By Changing Variable Cells: Select all Value cells for slate decisions (e.g., C4:C15)

## Step 4: Add Constraints

Click 'Add' and enter the following constraints:

* Query Constraints:
* C4 + C5 + C6 + C7 <= 15 (Burger and Fries)
* C8 + C9 + C10 + C11 <= 20 (Fast Food)
* C12 + C13 + C14 + C15 <= 10 (Cheap Lunch)
* Budget Constraints:
* Burger King:  
  0.01\*(0.097\*C4 + 0.097\*C6 + 0.061\*C7) + 8.36\*(0.097\*C8 + 0.097\*C10 + 0.061\*C11) + 0.01\*(0.081\*C12 + 0.081\*C14 + 0.051\*C15) <= 10
* Wendy's:  
  20.32\*(0.048\*C5 + 0.048\*C6 + 0.048\*C7) + 1.42\*(0.034\*C9 + 0.034\*C10 + 0.034\*C11) + 18.43\*(0.032\*C13 + 0.032\*C14 + 0.032\*C15) <= 50
* Non-Negativity Constraint:
* C4:C15 >= 0

## Step 5: Choose the Solving Method

Choose 'Simplex LP' as the solving method.

## Step 6: Solve

* Click 'Solve'  
  Once Excel processes the model, it will return the optimal values  
  Click 'Keep Solver Solution' when prompted

## Result

* The optimal slate values will be shown in cells C4:C15, and the Total Revenue will be displayed in line 39. Line 40 will summarize the combinations of variables and their optimal values.