

Excel Tutorial 2:When Zombies Attack!

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Tutorial learning objectives

- By the end of the tutorial, you should:
 - Understand how to use and find functions in excel
 - Understand and be able to effectively use the 'If Then' statement in excel for data analysis
 - Know how to create and edit complex graphs from your data in excel
- Also: KNOW HOW TO RATION BULLETS IN THE EVENT OF A ZOMBIE APOCALYPSE...

The Story/data so far...



- It was a pleasant day in the top 25 cities (by pop) of the world.
- The citizens were going about their business unaware that somewhere in the middle of their cities, experiments were underway to create a new type of bioweapon
- Unfortunately, an absent minded scientist left his petridish open....and released the zombie pathogen to the world
- Now with months on the clock, humanity struggles to survive against the growing army of the undead.
- The government is now run by the mafia and they've hired some economists to help them figure out how to maximize profit from the growing zombie-bullet market

And this is where our story is so far...



Using functions in excel

- You can Find Functions in Excel.
- So our economists working for the mafia govt. have been asked to forecast demand, price and revenue from bullets sales as well as profits from bullets sales for the next 36 years
- The Mafia heads also want summary statistics
- First in the 'Bullets' worksheet in our zombie excel workbook, go ahead and fill in the formulas for AVERAGE, MAX, MIN, LN, SUM, MEDIAN for the variables highlighted in blue in that sheet
- What is the max and min price over that period?



Using functions in excel

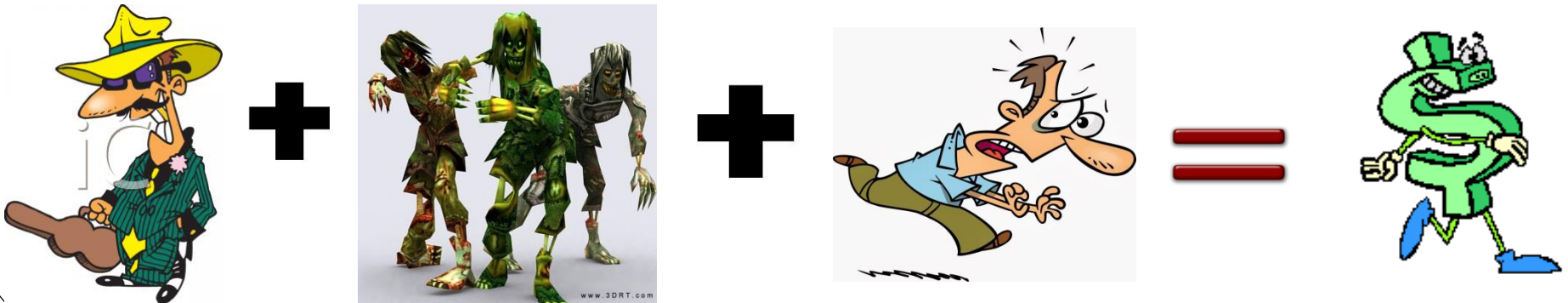
- Be aware of blank cells
- Notice the explanation of the function to understand how it treats characters/text and other formulas
- —The ‘explanation’ occurs when you’ve typed the function name, but before you’ve typed ‘(‘ .

- Formatting Text & Borders



Mafia zombie economics: If then Statements

- Now the mafia, in an effort to maximize profits over the 36 years of zombie, decides to seize monopoly power and set prices for bullets
- They want to know which years to expect high prices and which years to expect low prices. To do this they use the if then statement relative to the average price
- In the Bullets sheet, under the 'High price, low price' column, enter the if then statement that would allow you to do the above- enter 1, if high price (above average), 0, if low price (below average)

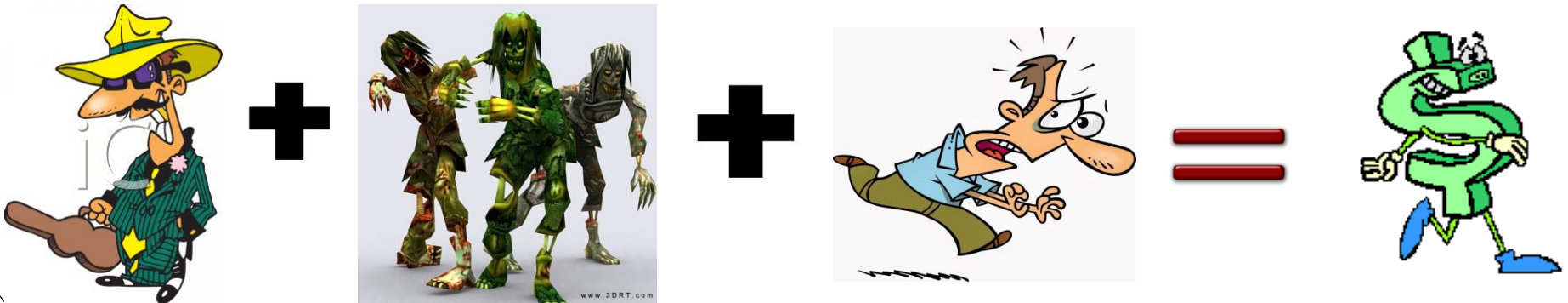


Mafia zombie economics: If then Statements

- Really: if-then-else

If (something is true) then (do something) else (do something else, or nothing)

- $\text{if}(\text{logic statement}, \text{output for true}, \text{output for false})$
- If prices are greater than average price, then 1, if less than average price, then 0



Mafia zombie economics: If then Statements- Nested statements

- The mafia now knowing where high price and low price years are now wants to set prices high in years that will be high price years and where profit is expected to be positive (assume demand is inelastic)
- In the 'Price setting' column in the Bullets sheet, enter the statement above, with a 1, if true, 0 if false.



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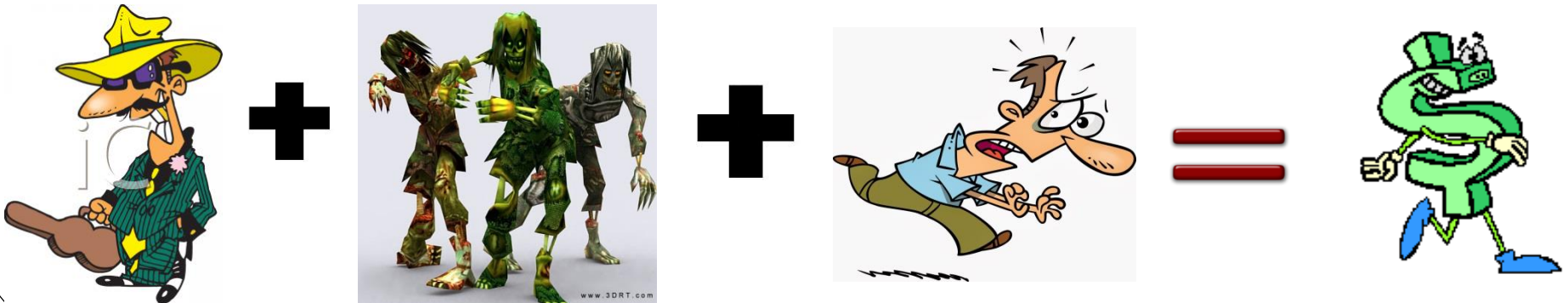


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Mafia zombie economics: If then Statements

- Finally, the mafia decides to assign prices to different years setting prices, if 'Price setting' = 1, to the maximum price, and otherwise allowing price to be whatever it was going to be for that year (see sheet)
- This way it can extract as much profit as possible in the high price years



An aside on series fill and paste

- Series Fill
- Paste transpose of a column/row
- Paste values of a formula



More complex charts

- “Select Data” further unpacked : Let’s go back to the ‘population’ sheet. Chart the economist projected population for New York, Accra and Seoul over the 38 years with a line graph
- Adding multiple series to scatterplots- show a scatterplot of Accra against Seoul, now add New York (using Select Data)
- Adding a secondary axis- “Format Data Series” – Add a secondary axis for Accra series, Change the axis to logs. What do you see?
- Minor and major tickmarks and switching row/column with Select Data and rotating name labels on the x-axis
- Adding gridlines- right click on axis



QUESTIONS?