1

The Old Justice League of America designated in this problem as **JLA**) has the following employees with the salaries and 401K percent s:

Name:

|  |  |  |
| --- | --- | --- |
| Employee | Gross Salary | 401 K percent |
| Clark Kent | 120000 | 10 |
| Bruce Wayne | 100000 | 4 |
| Barry Allen | 90000 | 5 |
| Hal Jordan | 110000 | 7 |
| Oliver Queen | 80000 | 8 |
| John Jones | 70000 | 10 |
| Carter Hall | 60000 | 3 |
| Ray Palmer | 85000 | 9 |



Copy this information by typing the information into an excel spreadsheet . Now we need to do the following on that spreadsheet:

Even superheroes have to fund retirement plans and pay medical benefits. We need to calculate the costs associated with social security, 401Ks and section 125. And, we need to determine the Employer (the Justice league of America) and Employee costs.

1. Let’s do social security. This is a tax that is paid on the gross salary. Therefore, it comes directly out of the employee’s gross salary. It does not affect federal wage tax (or other taxes for that matter). The calculation is as follows for this test: 7.65% of the first 102000 of gross income. If income is less, social security tax applies to all of the income. If salary is above, only 102000 is subjected to this tax. Set up a column for the cost of this tax to the employee. (Note: remember this is 7.65% and not 7.65)
2. The cost to the employer(the JLA) equals the cost to the employee for Social security. Set up a column showing this equal cost to the employer.
3. 401 K’s are employee optional retirement packages. The emphasis is on optional. The employee does not have to participate and if he/she does, he/she determines the percentage amount of participation. For this problem we are assuming that the employee is limited to a percentage between %5 and 10%. The money funding this benefit is taken directly out of the employee’s gross salary. Above, you see the percentage each employee has chosen and you have copied this into your spreadsheet. Calculate the cost of this plan to the employee.
4. As far as 401K’s are concerned, the employer is allowed to match the employee contribution up to a certain percentage. The JLA has chosen to match up to 5% of the salary. This means that if the employee has chosen 5% or less, the JLA matches the contribution. If over 5%, the JLA contribution is maxed out at 5%. Calculate this cost to the employer.
5. Section 125 is a section of the tax code that allows the Employee to create a before tax shelter to pay for child care and medical premiums. This money is taken directly out of the employee’s pay into this shelter. For this problem, the employee can choose to contribute up to 15% of salary or a max of 15000 whichever is lower. Every employee of JLA has chosen to max out their section 125 contribution. Given the limitations (15% or 15000), calculate the employee section 125 contribution.
6. Now, calculate the employee’s cost of these 3 contributions (social security, 401K and section 125) by adding the 3 corresponding columns of employee costs together for each employee.
7. Calculate the employer’s (JLA) cost of these. There are 2 columns involved with employer cost. Create a column that is the total employer cost for each employee
8. Calculate the net salary remaining to each employee. This is the employee’s gross salary minus the column you calculated in part 6 above, the cost of these 3 retirement fundings.
9. Finally, create column totals for each of these columns and format accordingly.

2

Look at Bond movies.xlsx. We are doing this problem by subtotal. **Do not set up the table construct in this file. If you do, you will be wrong.**

 You will see that this is a excel spreadsheet of the 22 James Bond movies (what a surprise). Indicated in this are the lead actor, the director and several columns of data. One piece of information is the inflation adjusted revenue. Another is the inflation adjusted cost of making the movie. These are the last 2 columns.

1. Profit is the difference between these columns and this is what we are searching for. Calculate in a new column the profit for each of these movies using these last 2 columns.

Now, this problem will do two things. Allow you to do a subtotal and also prove that a pivot table can exist using the same data as a subtotal. We are going to do a pivot table first, and then a subtotal. Remember, do not use the new table construct.

1. Using the insert menu, insert a new pivot table. We want to find the total profits of the movies pertaining to all the actors (Sean Connery, Etc).
2. Order (sort) this pivot table by profit for each actor. Create a bar chart and format as you would like.

Now, let’s get back to sheet1, the underlying data of the pivot table. Once a pivot table is set, changes can be made to the underlying table without affecting the pivot table

1. Now, we want to use subtotals to determine the profit of these films by director. We need to prep this data in sheet1 for determine this. Now answer this question on your paper and act on it on the spreadsheet. We need to bunch together the films that are associated with each director, therefore we need to sort on \_\_\_\_\_\_\_\_\_\_\_ . Do this on your spreadsheet.
2. Use the data ribbon to invoke subtotals. Use the previous part (Part 4) to select the column where changes to it invoke a subtotal entry (this should be director, is that not correct?) The last column (profit) should be checked automatically.
3. Once you have done a subtotal, use the controls to the left to show each director and the profit that is associated with him for the pictures he directed.
4. We showed several ways to doing graphs on the spreadsheet. One was the use of the control key to extend a range. The other was grouping columns. Whichever way, create a bar graph for this spreadsheet.

You can check to see if you are mathematically correct. The grand totals of both the subtotal and the pivot table should match.

3

 Look at the psa index.xlsx file. This is an excel spreadsheet analyzing prostate cancer treatments. The men are classified by body type, B1 through B7, the stage of their cancer (we’ve used A through D with each being progressively worse, but in real life cancer progression is given a numerical grading – i.e. when your instructor had his operation last year he was in stage 1 of prostate cancer) and the treatment each man selected – and while the numbers are made up, these cancer treatments are accurate including the latest, provenge, which is a drug.

Here’s what you are to do. We need someone to run this spreadsheet and answer certain questions.

1. Create a pivot table on this data.
2. Rows in the pivot table will list the treatments
3. Columns will list the body types
4. Use a count of patient number to determine the number of men in each of these categories. Now answer these questions for the researchers

How many men in total are in this study? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How many selected cryogenics?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How many selected Provenge? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Of those selecting provenge, which body type had the largest selection of this drug?\_\_\_\_\_\_\_\_\_\_\_

How many men of Body type B7 are in this study? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

If you knew that there was a uniform distribution (equal selections at every node) of body types, what would you conclude about the biasness (the legitimacy) of this survey?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4

One way of classifying body type is through something called BMI (body mass index). This is calculated by the following formula: 703 \* weight in pounds/(height in inches \* height in inches). For an example of this, take your instructor. He is 5’8” and 162 lbs. This would translate to 703 \* 162/(68 \* 68) = 24.63.

Open BMI Index.xlsx, a excel spreadsheet that researches weight loss programs. For each participant, you will see their height, height squared (height \* height), weight before the exercise program, their weight after and the exercise program they selected.

1. Use the new table construct on this data. We are going to be creating some new columns (probably 3) and you are allowed to handle these new columns any way you would like while still using the table construct
2. Use the filter for the column that indicates exercise program. Notice water therapy. Some of this seems to be spelled wrong. Fix the spelling appropriately. The easiest way to do this is how we changed the New York Highlanders to the New York Yankees in class.
3. We need to calculate BMI’s for both the before weight and weight after. Create two new columns doing these calculations as indicated above for each person in the spreadsheet. When you are done you should have 2 new columns: Before BMI and After BMI.
4. We need another column indicating the difference in the BMI’s after the exercise regime. This entails subtracting the After BMI from the Before BMI. This makes a new 3rd column.
5. Now, let’s run a pivot table comparing the different exercise regimens. The value we are seeking is the average BMI loss (the last column you just created). In essence, on the pivot table, you want to calculate the average change in BMI for each of the exercise regimens.
6. Sort this from large to small. The top one is the best regimen on average. And while your at it, you might as well set this to 2 decimal places.
7. Now, we want to create a second pivot table. Go back to the underlying data on sheet1 and again ask for a pivot table.
8. On this new pivot table we want to do the same as above with one addition. Use Sex as a column label and do the same thing although there is no need to sort.

**First, on doing this test. You have 2 hours. Spend an appropriate time on each problem. All of these are 25 points.**

**Second. In doing the problems, save these first on your computer and at the end do one of three possibilities:**

**Send by Email to** **777rauer@voicenet.com****. Your problems become attachments. Carbon copy yourself.** Send an Email to yourself with these attachments even if not emailing me your answers.

**Save to a flash memory device.**

**Save to floppy**