THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

BUSINESS SCHOOL
DEPARTMENT OF INFORMATION SYSTEMS AND OPERATIONS MANAGEMENT

INFOMGMT 192 Assignment #2

Information Technology plays an essential role in decision making. Microsoft Excel spreadsheet software includes a robust set of tools that combine different analytical methods that can be applied to solve many types of problems. In this assignment, you will use the If function, Goal Seek, Solver, Pivot Tables, and Pivot Charts tools for performing different types of analyses.

Problem 1. Maintenance Checkup

RentFun is a business that uses booths to rent digital discs. The quality of the discs worsens to the extent that RentFun considers them to be defective.

RentFun wants to maintain a stock of discs that are at least 90 percent acceptable. RentFun has hired you to create a report that assesses each disc based on:

- Total number of times each title has been rented
- Number of times each title has reported defects
- The percent acceptable must be above 90% based on usage. If the percentage acceptable is below 90%, RentFun wants to label the disc as "DISCARD."

RentFun has given you with the data in a file called **RentFun.xlsx.** The figure below displays a sample of the output that RentFun needs.

ID	TITLE	# OF RENTALS	# OF DEFECTS	STATUS
1	Walk the Line (2005)	114	5	
2	Yours, Mine and Ours (2005)	53	5	
3	The Weather Man (2005)	112	54	
4	North Country (2005)	23	12	
5	Domino (2005)	100	12	
6	Saw II (2005)	44	19	
7	Rent (2005)	53	12	
8	Just Like Heaven (2005)	42	26	
9	Elizabethtown (2005)	92	26	
10	Zathura: A Space Adventure (2005)	20	19	DISCARD
11	Flightplan (2005)	44	40	DISCARD
12	Waiting... (2005/I)	88	26	
13	In Her Shoes (2005)	34	33	DISCARD
14	Corpse Bride (2005)	99	33	
15	The Legend of Zorro (2005)	62	33	
16	Proof (2005)	24	19	

Problem 2. Loan Estimation

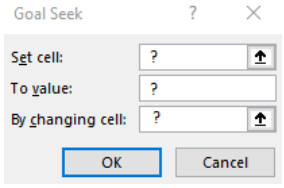
Katia wants to buy a more recent car to replace her current one. Katia's bank offers her an annual interest rate of 5.00% for a two-year loan. By selling her old car and using her savings, Katia has $5,000 available as a down payment. Under her current budget, Katia figures out that the maximum monthly loan payment she can pay is $500. She wants to find out the maximum car price she can buy and keep the monthly payment no higher than $500. She cannot change the interest rate or the two-year term.

Using Goal Seek, determine the highest purchase price Katia can afford.

Hints:

- Use the PMT function to calculate the payments of Katia's loan. Note that the PMT function returns a negative value because it represents payments being made to the lender. Thus, you can multiply the result of the PMT function by -1 to generate a positive value.

In your solution, you must include a screenshot of your Goal Seek configuration.



Problem 3. Profit Forecast

Joe Adams, a New Zealand entrepreneur, wants to maximize his profit on the sale of New Zealand handcraft. Joe has two items he wants to sell to tourists coming to New Zealand:

Items	Retail Price	Wholesale Cost
Maori Boat Woodcraft	$349.95	$192.47
Maori Wooden Nesting Dolls	$199.95	$109.99

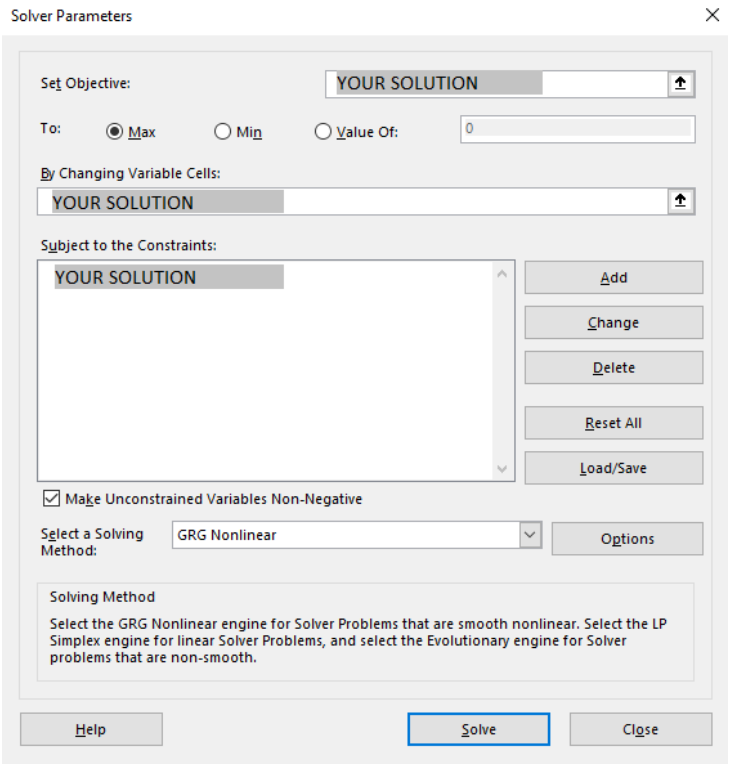
Joe hires you to help him calculate his maximum profit. First, Joe would like to locate two more products not listed in the table above with a retail price of $329.00 and $279.00, respectively. The wholesale price of each unit is 55% of the retail price for both products. Joe has two constraints:

1. Joe's budget to purchase the items from a local workshop is $200,000. Thus, the total wholesale cost of the four items must be less than $200,000.

2. Joe must purchase between a minimum of 100 units and 500 units of each item from the workshop.

Using Solver, maximize the total profit for Joe with the constraints mentioned above and limiting the number of items to positive integers.

In your solution, you must include a screenshot of your Solver configuration.



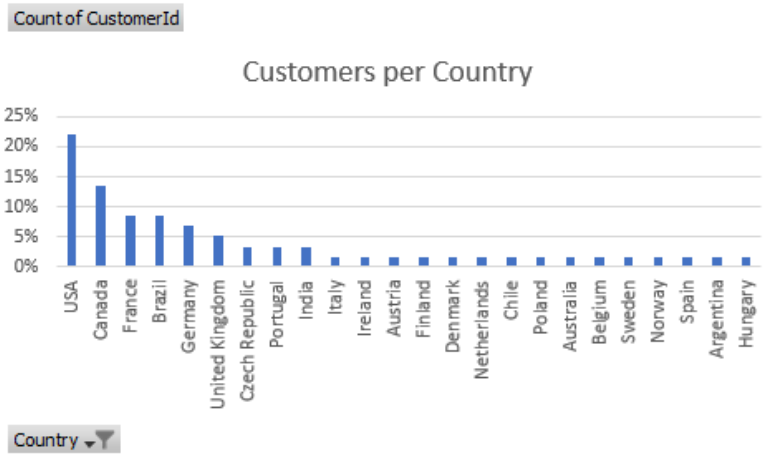
Problem 4. Customer Analysis

The sales manager of an international online retail store called Tilidom wants to generate a report depicting customers' distribution among different countries.

Using Excel and the **Tilidom.csv** file, create the following displays:

- A table that shows the total of sales and customers in each country
- A bar chart that displays the percentage of customers in each country

Row Labels	Sales	Num. Customers
USA	$ 523.06	91
Canada	$ 303.96	56
France	$ 195.10	35
Brazil	$ 190.10	35
Germany	$ 156.48	28
United Kingdom	$ 112.86	21
Czech Republic	$ 90.24	14
Portugal	$ 77.24	14
India	$ 75.26	13
Chile	$ 46.62	7
Hungary	$ 45.62	7
Ireland	$ 45.62	7
Austria	$ 42.62	7
Finland	$ 41.62	7
Netherlands	$ 40.62	7
Norway	$ 39.62	7
Sweden	$ 38.62	7
Argentina	$ 37.62	7
Australia	$ 37.62	7
Denmark	$ 37.62	7
Poland	$ 37.62	7
Italy	$ 37.62	7
Spain	$ 37.62	7
Belgium	$ 37.62	7
Grand Total	**2328.6**	**412**



What to Submit?

You must submit an MS Excel workbook with one sheet per problem. You must use the **TEMPLATE.xlsx** workbook provided to you.

Note that the template workbook contains just a base for your solutions. You may add cells with additional text and values as you complete each problem.