



Al Imam Mohammad Ibn Saud Islamic University
College of Computer and Information Sciences
Information Systems Department

Course Title:	Decision Support Systems
Course Code:	IS 350- IS332
Instructor:	Najla Alhasoun
Title:	Project
Semester:	Fall 2022
Due Date:	Monday 31 Oct 2022 (12:00 midnight)

Student Name (in Arabic)	Student ID	Section	Group #

Official Use Only		
Question	Student Marks	Question Marks
Part 1		10
Part 2		10
Total		Out of 20



Evaluation Sheet

Project Part	Criteria	Mark	
Part 1	1) Create a RapidMiner process .	1	
	2) load the AirlineReviews.xlsx data file.	1	
	3) Check data readiness and preprocessing if needed.	1	
	4) Use split process correctly	1	
	5) Use good classifier	1	
	6) Do necessary connections	1	
	7) Include necessary process and operators.	1	
	8) Run the classifier and display the result.	1	
	9) Use different good classifier	1	
	10) Compare the accuracy and identify the best classifier.	0.5	
	11) Explain the answer of question 7.	0.5	
Total Part 1			
Part 2 :Task 1	1) Define all decision variables correctly	1	
	2) Define the objective function correctly	1	
	3) State all the constraints correctly	2	
	4) Create an excel sheet to put the information of the above problem and formulation as needed.	1	
	5) Solve the problem using Solver.	2	
Part 2 :Task 2	1) Update the model you created for Task-1 and the solver.	1.5	
	2) What is your suggestion for Norin kitchen regarding Food3 ?	1	
	3) Justify your answer.	0.5	
Total Part 2			



This project comes in two parts. In each part you will be asked to perform different tasks using a specific DSS tool.

Part I : Rapid Miner

In this part you will analyse an Airline data related to clients reviews and create a classification model to classify the instance class (airline_sentiment).

You will have to use **Rapidminer** to do the following task:

1. Download and install **RapidMiner Studio** from the following link <https://rapidminer.com/> and Register for “Educational purposes” using your university email address to receive a license
2. Open RapidMiner Studio to get started.
3. Create a process to load the **AirlineReviews.xlsx** data file.
4. Check **AirlineReviews** Data for any necessary pre-processing. Do any necessary pre-processing on the data file
5. Use Split process to split your data into training and test sets with the following Partitions ratio : 0.6 , 0.4 .
6. Include a good classifier in your process and create a classification model to classify reviews.
7. Use another different classifier and compare the performance (accuracy)for the 2 classifiers. Indicate the best classifier for this data and explain why.

Hint: You can use the *tutorial.rmp* file for a quick start !



Part 2 : Linear Programming

In this part you will solve a Linear Programming problem using Excel Solver.

Norin kitchen wants to develop a special diet using 2 kinds of food *Food1* and *Food2*. Each portion of *Food1* contains 12 units of protein, 4 units of iron, 6 units of cholesterol and 6 units of vitamin E. Each portion of *Food2* contains 3 units of protein, 20 units of iron, 4 units of cholesterol and 3 units of vitamin E. The diet requires at least 240 units of protein, at least 460 units of iron and at most 300 units of cholesterol. How many portions of each food should be used to minimise the amount of vitamin E in the diet? What is the minimum amount of vitamin E?

➤ Task 1

a. Model the above problem as an optimization problem maximizing the weekly profit contribution:

1. Define the decision variables
2. Define the objective function
3. State the constraints

b.

1. Activate Solver Add-in in your Microsoft Excel
2. Create an excel sheet to put the information of the above problem.
3. Solve the problem using **Solver**.

➤ Task 2

Norin Kitchen decided to add one more kind of food, *Food3*. Each portion of *Food3* contains 40 units of protein, 60 units of iron, 4 units of cholesterol and 9 units of vitamin E.

1. Update the model you created for Task-1
2. What is your suggestion for Norin kitchen regarding *Food3* ? Justify your answer.



Submission Guidelines:

for Part1:

1. Give screen shots of every Task in this Word file.

for Part2:

1. Describe your models and the solution in this Word file.
2. Give screen shots of every Task in this Word file.

Five files should be uploaded on LMS:

1. 2 Rapidminer *.rmp files of Part 1.
 2. 2 Excel files for both tasks in Part 2 (task-1 → 1 file, and task-2 → 1 files).
 3. This file after adding your solutions and screenshots for both parts on LMS **as (PDF) file.**
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