

## Using and managing data and information

BA3005 – 2020-21

### Assignment 3

#### **Note to students:**

There are **FOUR** tasks (A to D) and you are expected to complete all of them. You are expected to transfer the work of all tasks on a single word processor file and upload your work as WORD on Turnitin.

You are required to start each task on a new page and clearly label your answers.

The deadline for this assignment is (Friday **30<sup>th</sup> April 2021 before 3pm**).

#### **Task A**

A carpet shop specialises in selling six types of fine carpets named simply as “Iranian”, “Algerian”, “Turkish”, “Peruvian”, “Uzbek” and “Malian”.

The shop wants you to create an Excel sales table consisting of the following entries:

Type of carpet	N° of units sold	Price (£)	Total (£)

They want to data-validate as a list the cell presented in green above.

The number of carpets (N° of units) to be sold should be data-validated as a number that does not exceed TWO. The price (£) should be retrieved from the following table using an XLOOKUP formula.

Type of carpet	Price (£)
Iranian	12000
Algerian	10000
Turkish	8000
Peruvian	15000
Uzbek	20000
Malian	14000

The Total (£) column should be calculated using the following Excel formula:

$$\text{Total} = \text{N° of units sold} \times \text{Price}$$

#### **Required:**

Produce an Excel worksheet showing how you will progress the above project. You need to show useful screenshots and formulae for all the activities and give how your table retrieves the price for the “Peruvian” carpet. You should insert all your work on a single WORD page.

## Task B

An airline company surveyed its passengers regarding their experience through the airport. In particular, they wanted to examine the level of their satisfaction and the time taken to get through the airport.

The satisfaction level is measured using scores from 0=Not at all satisfied to 60=Very satisfied.

The time through the airport was measured by giving each passenger a card once they arrive at the airport to be returned to an agent once they reach the departure lounge and the time measured in minutes.

The following questionnaire was used. The data is recorded in a filename “**Airport.xlsx**”.

### The questionnaire

#### About you and your travel

Q.1: Is your [Age]:    **1.** <20                      **2.** 20 to 29                      **3.** 30 to 39                      **4.** 40 to 49                      **5.** 50 and over

Q.2: Are you travelling today [Type]?                      **1.** Business                      **2.** Holiday                      **3.** Family visit

Q.3: Are you travelling [Class]?                      **1.** Business (First) class                      **2.** Economy

Q.4: How many pieces of [luggage] are you travelling with? Please state: .....

#### Required

1. Produce a frequency and percentage frequency tables for each of the following variables:
  - Age
  - Type (of travel)
2. Draw a bar chart representing the variable “Age”.
3. Calculate the descriptive statistics (Location and spread) for the variable “Satisfaction”. The descriptive should include the minimum, maximum, both quartiles, mean, median, variance, standard deviation, range and inter-quartile range.  
Please note that the statistics should be presented correct to a whole number but the mean and standard deviation should be presented correct to the nearest 1 decimal place.
4. Draw a box plot for the variable “Satisfaction” split by “Class” of travel.
5. Draw a scatter diagram of the “**satisfaction**” score against “**time**” taken, calculate the correlation coefficient and show the linear regression equation in context (not in x and y).

## **Task C**

A builder contacted you for a project management work in order to plan a medium scale building project. He knew all the different activities of the job, their precedence and their average durations which he shared with you. They are shown on the table below.

Activity	Duration (Weeks)	Preceding activities
A	1	None
B	2	None
C	3	A and B
D	4	C
E	2	A
F	4	E
G	3	D
H	2	F
I	2	H

### **Required:**

1. Draw a network diagram and conduct the forward and backward pass.
2. State the duration of this project and the critical path.
3. Explain, without doing any calculation, what would happen to the project if the actual duration of activity A is two weeks. No more than 20 words.

### **Note:**

The work for this task should be produced using Word drawing facilities. The forward and backward passes should be clearly shown on the diagram. Each activity should be described using the notation shown in class as follows:

Activity name	Earliest start time	Earliest finish time
Activity duration	Latest start time	Latest finish time

## **Task D**

A small hotel with 8 rooms is located in central London. Based on records over the last 5 years, it was estimated that the probability a room is occupied on any particular “weekend” night (Saturday and Sunday) is 0.7. This is the probability of success.

On any particular “weekend” night, a hotel is only occupied (Success) or not occupied (Failure). There are no other possibilities.

1. What is the probability that FOUR or more rooms are occupied on any particular weekend night? Show all your calculations using a well laid-out Excel spreadsheet table.

The occupancy rate on any particular night during a week-day (Monday to Friday) is assumed to be 50%, i.e. a room has a probability of 0.5 to be occupied during any week-day.

On the first Monday in January, 2 out of the 8 rooms were occupied.

2. What is the p-value? You need to show the table of values for your calculations

Give your answers correct to 3 decimal places.

**End of assignment**