Chapter 01

Introduction to Minitab

Biostatistics

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Objectives

➤ Learn about the **Minitab 17** user interface.
➤ Open and examine a worksheet.

Overview

Getting Started with **Minitab 17** introduces you to some of the most commonly used features and tasks in **Minitab**. Throughout **Minitab**, you can do the following:

➤ Enter Data.
➤ Create Graphs.
➤ Perform Statistical Analyses.

Introduction

What is **Minitab**?

Answer

➤ **Minitab** is a statistics program that allows you to quickly enter your data and then run a variety of analyses on that data.
➤ **Minitab** can take a lot of the hard work out of your statistics calculations.
➤ **Minitab** has a user friendly interface.

Importance of Minitab
Minitab aids in the following points:

Simplifying input of statistical data   Manipulating data   Identifying trends and patterns   Extrapolating answers to the problem at hand

Worksheet Structure and Format of Minitab

Question: How to start your **Minitab** program?

Answer
There are two ways as follows:

(a) From the Windows taskbar, choose:
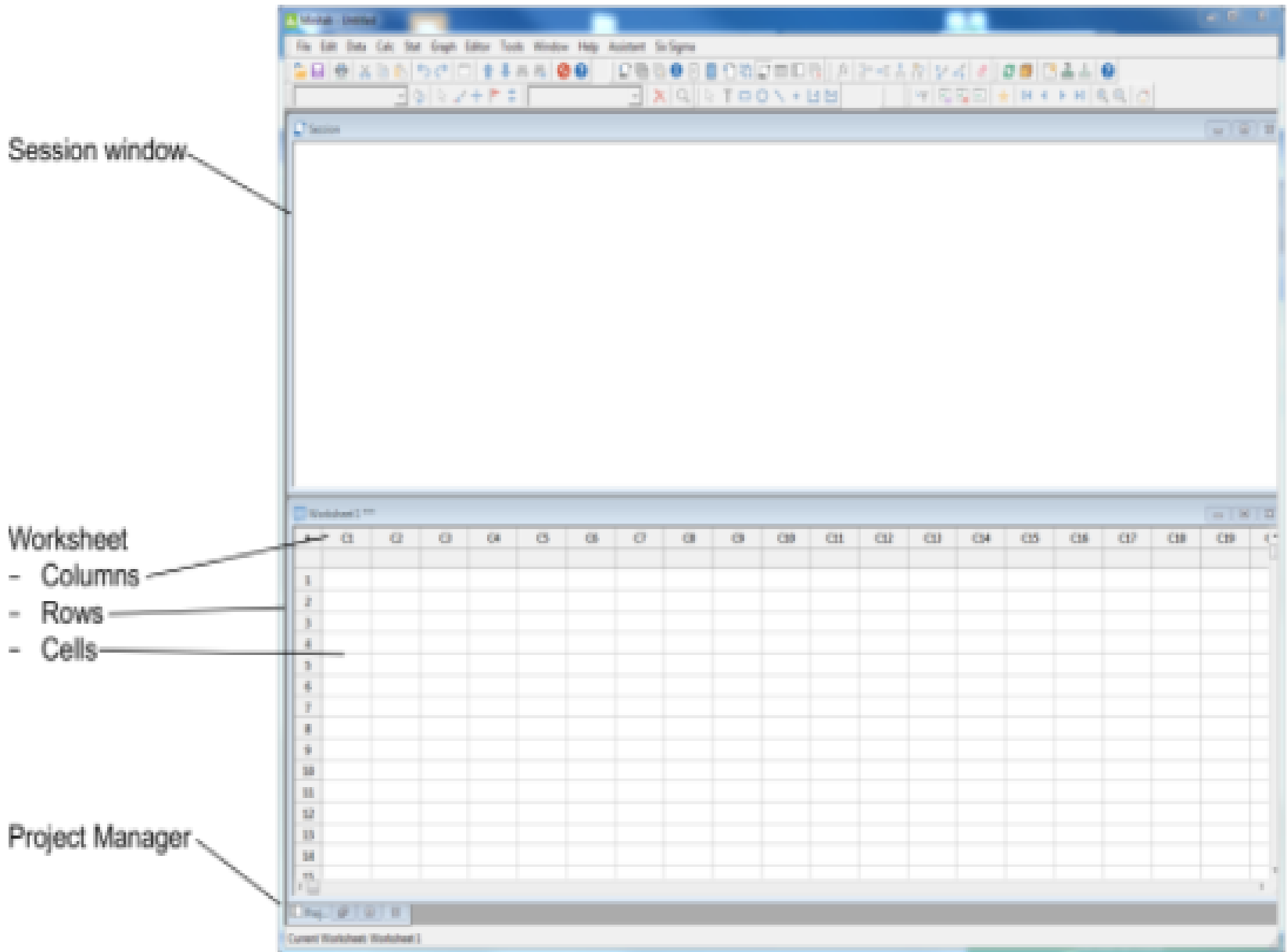
Start > All Programs > Minitab > Minitab 17

(b) From the Desktop, double click on the following icon:

Minitab 17

When **Minitab** opens, there are three windows. By default, **Minitab** opens with two windows visible and one window minimized. The visible windows are the Session Window AND the Worksheet Window. The minimized window is the Project Manager Window as shown in Figure (1).
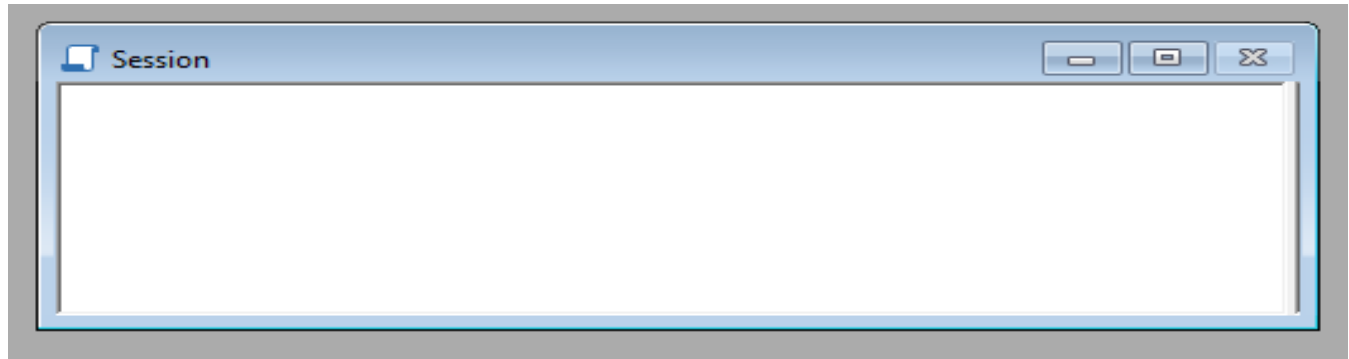
**Figure (1)**: The Minitab Windows

Minitab Windows

➤ **Session Window**

The Session window displays the results of your analyses in text format. Also, in this window, you can enter session commands in the Command Line pane instead of using Minitab's menus.

➤ **Worksheet Window**

The worksheet window, which is similar to a spreadsheet, is where you enter and arrange your data. You can open multiple worksheets. Worksheet (.MTW) files store the Columns of data, Constants and Matrices
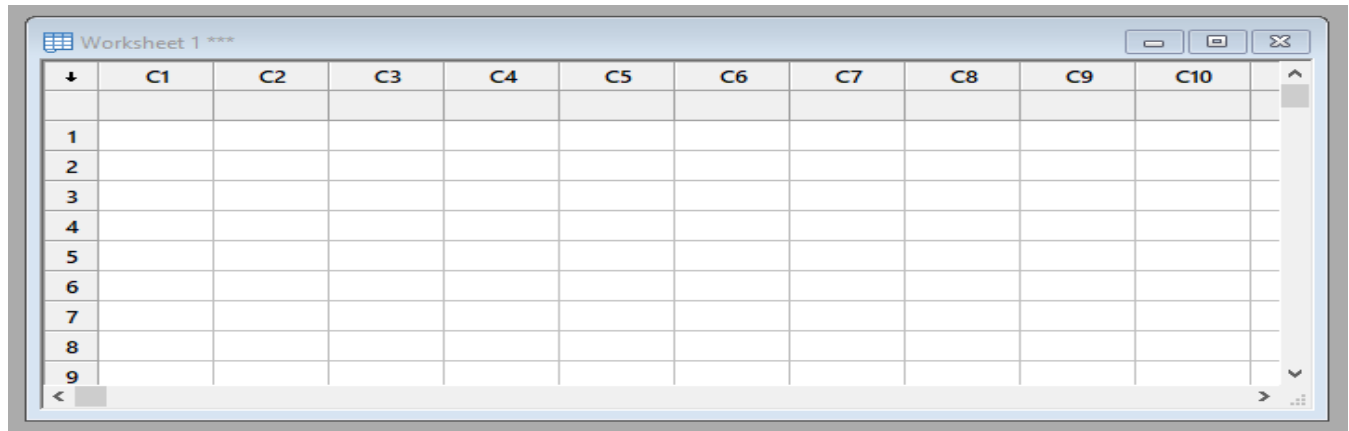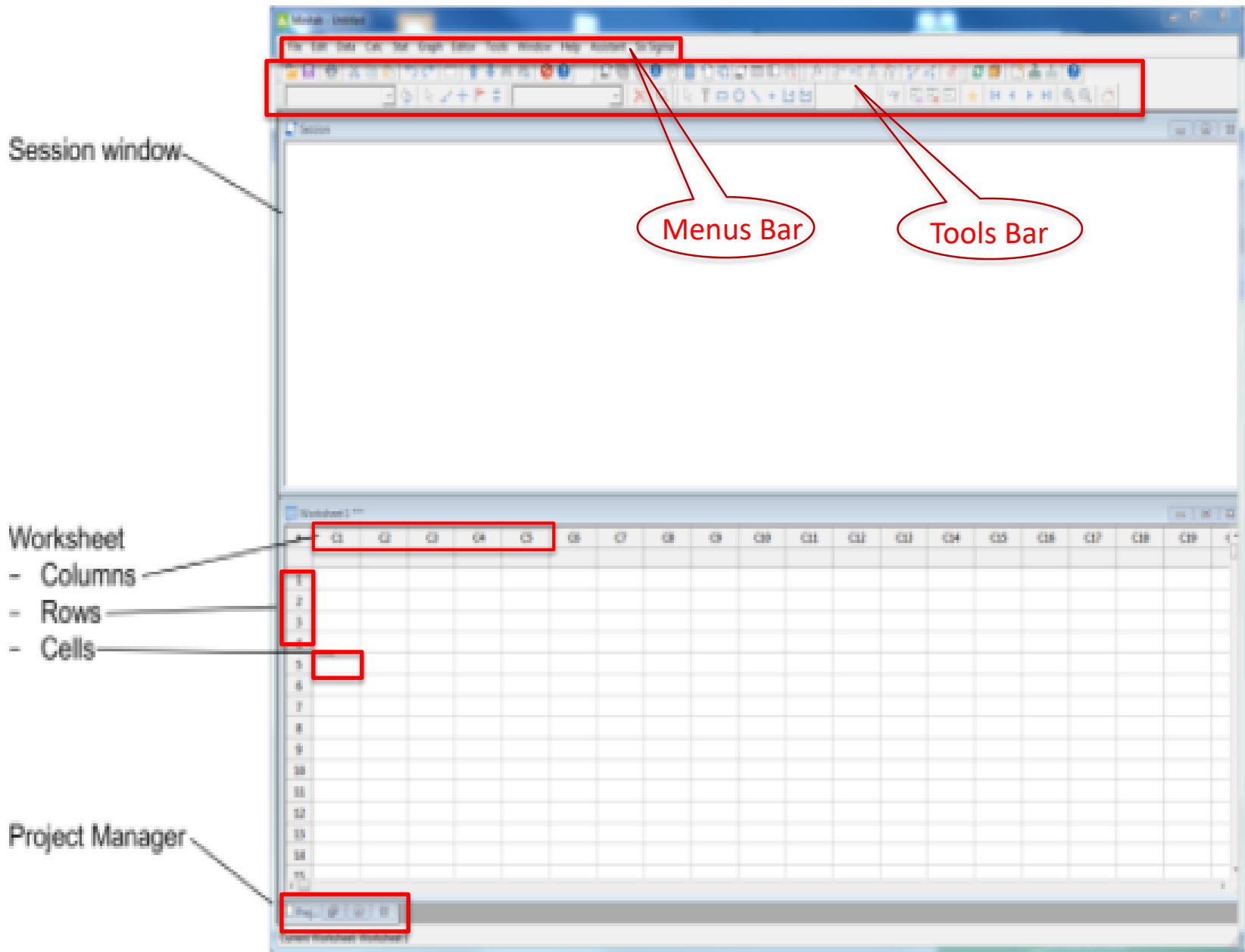
Figure (2): The Minitab Worksheets Components

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Important Notations

1) A worksheet is saved with .mtw extension.
2) The columns in the worksheet (which are also called variables) are named as C1, C2, … .
3) The rows in the worksheet are named as 1, 2, 3, … .
4) The intersection of each column and row is a Cell.
5) The row above row 1 is kept empty and is used for column heads (labels or names).
6) A single worksheet in **Minitab** can have up to 4000 columns.
7) The maximum number of rows depends on computer available memory.
8) You can open a new, empty worksheet at any time.
9) How to prepare your worksheet will be explained in Preparing a Worksheet.
10) When you have an open worksheet, you are ready to start using your **Minitab**.

Preparing a Worksheet

Before any analysis can begin, data needs to be entered into a worksheet. You can enter data in a Minitab worksheet in the following ways:

➢ Manual Entering: You can enter data in a **Minitab** worksheet by typing the data directly into the worksheet.
➢ Copy and Paste the Data from other Applications like for example Microsoft Excel Files.

Saving the Worksheet

Save all your work in a Minitab worksheet as follows:
1) Click in the worksheet, then choose **File > Save Worksheet As**.
2) Browse to the folder that you want to save your files in.
3) In File name, enter your name, for example, Biostatistics.
4) From Save as type, select Minitab.
5) Click **Save**.

Data Types

A worksheet in Minitab can contain the following types of data (see Figure (3)):

Numeric	Text data type	Date/Time
1 2 3 4 5 6 7 8 9 0		
This could be in the form of whole numbers such as 512 or 62525, or numbers with decimal, such as 3.422.	This could be in the form of Numbers, letters, special characters, and spaces. Test #4 or North America	4/8/2015, 09:16:16 am, 8-Mar-2015, 4/8/2015 09:16:16

Figure (3): Types of Data Entered to Minitab Worksheet

Column Name

A column name must follow these rules:
- It cannot be more than 31 characters.
- It cannot begin with an asterisk (*).
- It cannot contain the symbols ' or #.
- It cannot have the same name as a different column in the same worksheet.

Menu Bar Overview

Minitab consists of 11 main menu items arranged on the menu bar, and each item has a major role to play while you analyze and process data. Now we will look at each one of them.

File Menu

The File menu is used to perform actions such as open, close, save, print, import data, or run the various file types that can be used in Minitab.

Edit Menu

The Edit menu provides options to edit, undo, redo, clear, delete, or clear data from cells in a worksheet.

Data Menu

The Data menu allows to perform complex actions that would be difficult or tedious to replicate in other ways.

Calc Menu

The Calc menu enables to calculate mathematical expressions and transformations, individual row and column statistics, and center and scale columns of data.

Stat Menu

The Stat menu enables to run different tests and retrieve the corresponding statistical information.

Graph Menu

The Graph menu provides flexible suite of graphs to support a variety of analysis needs.

Editor Menu

The Editor menu consists of dynamic commands that change depending on the active window.

Tools Menu

The Tools menu enables to open and use tools such as Calculator or Notepad.

Windows Menu

The Window menu enables to manage different windows used in the project.

Help Menu

The Help menu provides options to display table of contents, User Manual, Tutorial, and Glossary.

Assistant Menu

The Assistant menu provides aid for analytic options available in Minitab.

Summary

Minitab uses a series of elements to help researchers and practitioners work with data and statistics. Let us now summarize the main points in this chapter:

- Minitab offers a highly user friendly interface, and its default view opens three windows, Session, Worksheet and Project Manager.

- Minitab 17 requires Windows 7 or higher to run on a computer having a minimum of 512 MB RAM and 1 GHz processor.

- A Worksheet in Minitab is saved with .mtw extension.

Homework

The data in the given Table are a random sample of size n = 25 patients selected from a larger data set collected on people discharged from a certain Jordanian hospital as a part of a retrospective chart review of antibiotic usage in hospitals:

ID No.	Name	Duration of Hospital Stay	Age	Sex 1 = M 2 = F	Birthday	First Temperature Following Admission	Received Antibiotic 1 = Yes 2 = No	Received Bacterial Culture 1 = Yes 2 = No	First WBC Following Admission	Service 1 = Medical 2 = Surgery
1	Ahmed	5	30	1	01/10/1991	37.2	2	2	8000	1
2	Ali	10	73	1	22/07/1949	36.7	2	1	5000	1
3	Rand	6	40	2	22/09/1981	37.2	2	2	12000	2
4	Layan	11	47	2	31/10/1974	36.8	2	2	4000	2
5	Rawan	5	25	2	30/06/1996	36.9	2	2	11000	2
6	Fatima	14	82	2	05/08/1939	36	1	2	6000	2
7	Ali	30	60	1	12/12/1961	37.5	1	1	8000	1
8	Omar	11	56	1	21/05/1965	37	2	2	7000	1
9	Naser	17	43	1	11/06/1978	36.7	2	2	7000	1
10	Yousef	3	50	1	25/08/1971	36.7	2	1	12000	2
11	Abdullah	9	59	1	18/09/1962	36.4	2	1	7000	1
12	Sara	3	4	2	15/10/2017	36.6	2	2	3000	2
13	Ahmed	8	22	1	27/08/1999	37.5	1	2	11000	2
14	Leen	8	33	2	12/04/1988	36.9	1	1	14000	2
15	Salem	5	20	1	07/06/2001	36.9	2	1	11000	2
16	Salma	5	32	2	05/03/1989	37.2	2	2	9000	2
17	Omar	7	36	1	03/02/1985	37.3	1	2	6000	2
18	Ali	4	69	1	01/02/1952	36.7	2	2	6000	2
19	Kareem	3	47	1	13/07/1974	36.1	1	2	5000	1
20	Abdullah	7	22	1	12/10/1999	36.8	2	2	6000	2
21	Layan	9	11	2	23/01/2010	36.8	2	2	10000	2
22	Jamal	11	19	1	15/09/2002	37	1	2	14000	2
23	Tayseer	11	67	1	23/06/1954	36.4	2	2	4000	1
24	Firas	9	43	1	18/08/1978	37	2	2	5000	2
25	Eyman	4	41	2	25/03/1980	36.7	2	2	5000	1

Answer the following:
(a) Enter the data into a Minitab worksheet?
(b) Give the name "Hospital-Stay data" for the worksheet?