



SAN PEDRO HIGH SCHOOL



2018-2019

# San Pedro High School Information Technology School Based Assessment (SBA)



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## ◆ GUIDELINES FOR THE CONDUCT OF THE SCHOOL BASED ASSESSMENT

The guidelines for conducting the SBA which consists of a practical project set by *the teacher* are shown below.

### 1. AIM

To provide students with the opportunity to demonstrate their problem solving and programming skills as well as their ability to use productivity tools effectively in:

- (i) entering, manipulating and presenting text data;
- (ii) simulating a worksheet;
- (iii) entering data, performing simple analysis on data and presenting data using a database management tool.

### 2. ASSIGNMENT

The School Based Assessment consists of one practical project consisting of four related components, prepared and marked by the teacher *in accordance with CXC guidelines*.

The components will test Problem Solving and Programming as well as the application of processes involved in the use of Database Management, Spreadsheets and Wordprocessing. The four components will therefore cover the Specific Objectives in Sections 2, 3, 6, 7 and 8.

### 3. ROLE OF THE TEACHER

The role of teacher is to:

- (i) *assign* the project for the School Based Assessment.
- (ii) provide guidance throughout the life of the projects. *The teacher should work with candidates to develop a project management chart with definite time lines for achieving clearly identified objectives, from project inception to project completion.*
- (iii) guide the candidate through the SBA by helping to clarify the problem or by discussing possible *approaches to solving the problem*. Teachers, *while giving guidance*, should guard against *providing a complete solution to the problem for the candidate or prescribing a specific format that should be followed*.

- (iv) assess each student's skills in problem solving and algorithm development using flowcharts or pseudocode, coding an algorithm in Pascal and the effective use of productivity tools to perform prescribed activities. The development of the project is a continuous exercise that occurs during scheduled class hours as well as outside class times. At a time to be determined by the teacher the relevant component will be assessed and the marks recorded. *Hardcopies of the completed documents should be kept by both the teacher and student.* The teacher should use the mark scheme provided by CXC and include any comments pertinent to the conduct of the assessment.
- (v) guide the candidate through the SBA by helping to clarify the problem or by discussing possible formats.
- (vi) ensure that students are allowed sufficient access to equipment to allow successful completion of their projects.

#### 4. ASSESSMENT CRITERIA

The following is the mark scheme for assessing SBA assignments. Teachers must clearly indicate the breakdown of the marks allocated for each question on the candidates' SBA paper.

##### (i) Wordprocessing - 20 marks

Processes	Key Skills	Mark Allocation
The effectiveness with which the student uses formatting facilities to create and enhance the document.	<ul style="list-style-type: none"> <li>• Formatting for presentation               <ul style="list-style-type: none"> <li>- justification</li> <li>- single and double line spacing</li> <li>- paragraph styling (indent, hanging, block)</li> </ul> </li> </ul>	2
	<ul style="list-style-type: none"> <li>• Formatting for emphasis               <ul style="list-style-type: none"> <li>- bold</li> <li>- italics</li> <li>- borders and shading to highlight and give emphasis</li> <li>- font and point size</li> </ul> </li> </ul>	2
	<ul style="list-style-type: none"> <li>• Other features               <ul style="list-style-type: none"> <li>- use of spell checker/search and replace/grammar check</li> <li>- search and replace</li> </ul> </li> </ul>	1
The effectiveness with which students use formatting facilities to present information.	<ul style="list-style-type: none"> <li>• Page Layout               <ul style="list-style-type: none"> <li>- set margins</li> <li>- change page orientations</li> <li>- change paper size</li> <li>- text orientation</li> </ul> </li> </ul>	(5) 2
	<ul style="list-style-type: none"> <li>• Headers/footers/endnotes</li> </ul>	1
	<ul style="list-style-type: none"> <li>• Tables</li> </ul>	2

The effectiveness with which students use facilities to create flyers or brochures.	• Multiple page/book fold/columns	2
	• Use of graphics	1
	• Clarity of itemization	
	- insert/delete (word, sentence, paragraph document)	1
	- block operations - move/copy/cut and paste	1
		(5)
The effectiveness with which students use facilities to perform mail merge.	• Defining appropriate fields in the document	1
	• Creating primary document	1
	• Creating secondary document appropriately	1
	• Performing the mail merge	2
		(5)

**(ii) Spreadsheets – 20 marks**

Processes	Key Skills	Mark Allocation
The effectiveness with which students use pre-defined systems functions to form arithmetic, logical and relation expressions.	• Demonstrating awareness of the existence of appropriate formulae	1
	• Use of appropriate formulae to solve numeric problems	2
	• Replicating formulae	1
	• Use of range names, relative and absolute addressing formats	2
		(6)
The effectiveness with which students manipulate the spreadsheet.	• Copying data	}
	• Moving data	
	• Use of formatting features to allow clarity of display	
	• Inserting page breaks appropriately	
	• Deleting and inserting rows such that formulae remain unaffected	
		2
		(2)
The effectiveness with which students use the search and sorting facilities.	• Setting up primary and secondary key fields	1
		(1)

The effectiveness with which students perform graphic operations to present information.	• Creating appropriate charts to represent data	3
	- bar, pie, line, from spreadsheet data	
	• Labelling charts appropriately	1
	• Comparing different series of data on a single bar chart or line graph	1
		(5)

The effectiveness with which students use spreadsheets to solve specific problems.	• Conceptualizing a solution using the spreadsheet	
	- select appropriate column and row labels	1

Processes	Key Skills	Mark Allocation
	- layout spreadsheet to permit easy additions and deletions	1
	- use constants in cells, instead of placing values directly in formula	1
	• Organizing spreadsheet so that data can easily be interpreted	1
	• Extracting data to allow summary information	2
		(6)

(iii) Database Management – 20 marks

Processes	Key Skills	Mark Allocation
The effectiveness with which students use facilities in creating and modifying database.	<ul style="list-style-type: none"> <li>• Defining fields and selecting appropriate data types to create tables</li> <li>• Identifying appropriate primary keys</li> <li>• Adding/deleting/sorting/modifying records or tuples</li> <li>• Deleting fields and changing field definitions</li> </ul>	<p>3</p> <p>1</p> <p>2</p> <p>1</p> <p>(7)</p>
The effectiveness with which students use the query facility.	<ul style="list-style-type: none"> <li>• Searching database <ul style="list-style-type: none"> <li>- use three tables, two tables one table in queries to generate new tables</li> <li>- use multiple conditions</li> </ul> </li> <li>• Producing calculated fields</li> </ul>	<p>3</p> <p>2</p> <p>2</p> <p>(7)</p>
The effectiveness with which student use report generating facilities.	<ul style="list-style-type: none"> <li>• Generating report on specified fields</li> <li>• Grouping on fields</li> <li>• Sorting on fields</li> <li>• Using summary features, for example, count and sum</li> </ul>	<p>2</p> <p>1</p> <p>1</p> <p>2</p> <p>(6)</p>

(iv) **Problem Solving and Programming – 30 marks**

Algorithm Development – 10 marks

Processes	Key Skills	Mark Allocation
Problem statement that defines the problem.	<ul style="list-style-type: none"><li>• Problem is clearly defined</li></ul>	1 (1)
Representing the solution in flowchart or pseudocode.	<ul style="list-style-type: none"><li>• Start of solution</li><li>• Definition of var/const<ul style="list-style-type: none"><li>- identify var/const</li><li>- initialize variables</li></ul></li><li>• Processing<ul style="list-style-type: none"><li>- request for data</li><li>- storing data</li><li>- appropriate and logical use of control structures: selection statements; looping constructs</li><li>- output results</li></ul></li><li>• End of solution</li></ul>	1 1 1 1 2 2 1 (9)

Trace Table Development - 5 marks

Processes	Key Skills	Mark Allocation
Constructing the trace table.	• ALL variables correctly identified and used	1
	• Appropriate test data	1
	• Data set complete	2
	- data set test ALL areas for robustness	2
	- [data set test SOME areas]	[1]
• Change in values correctly demonstrated	1	
		(5)

Programme Working to Specification - 15 marks

Processes	Key Skills	Mark Allocation
The effectiveness with which the program achieved the objective.	• Program compiled (1)	1
	• Output (2)	2
	- output is correct for ALL values in teacher's data set	2
	[Output is correct for SOME values in the teacher's data set]	[1]
		(3)
The effectiveness with which the language features are used to achieve a working solution.	• Appropriate use of features of the language (2)	2
	- appropriate choice of data types for ALL variables	2
	[appropriate choice of data types for SOME variables]	[1]
	• Appropriate use of control structures (7)	7
	- appropriate initialization of variables	1
	- appropriate use of sequence	1
	- appropriate use of if then else construct	2
[inefficient use of if then construct]	[1]	
The effectiveness with which the language features are used to achieve a working solution. (cont'd)	- appropriate use of looping construct to manipulate arrays and perform other tasks	3
	[inefficient or inappropriate use of loop construct]	[1]

Processes	Key Skills	Mark Allocation (9)
The effectiveness with which the language features are used to achieve clarity.	• Clarity of program (3)	
	- program documentation through variable names; author of program; date created; simple statement of task program solves	1
	- readability (correctly indented; logical flow of control; easy to follow;)	1
	- user-friendly.	1
		(3)

## 5. REQUIREMENTS OF SBA PROJECT DOCUMENTATION

### Problem-solving and Program Implementation Component

Requirements	Guidelines
Cover sheet	The information supplied here is essential since it is used to associate the submission with a particular candidate.
Table of contents	Provides easy reference when evaluating the project.
Problem definition	This section provides a clear statement of the problem. Students are also expected to draw flowcharts.
Program listing and output	This section is essential for assessing whether the component submitted is correct and complete. In addition, this section is used to evaluate the internal documentation. Candidates must demonstrate that they can select the appropriate features of the language to obtain the solution to the problem.
Test data (if applicable)	In situations where output is relevant, candidates are required to supply the test data that produced the output. This information would be necessary to determine whether the tasks have been performed correctly.



## **SBA SCHEDULE TIMELINES**

### **Guidelines**

All SBA projects can be completed on campus in ITLAB1/2 or at home. Students can document the SBA Project so that they can review/research the topics at home but the practical proficiency of each file must be submitted by sections to the Information Technology teacher.

### **Resources**

Spaces are going to be reserved for the students for the duration of the SBA and will be done on a first-come first-served basis. The available time for the SBA is in the evenings after classes or Saturdays 9:00am – 12:00am (**Reservation Only**). The lab is closed on Fridays for cleaning and preventive maintenance. It is also closed during teacher's staff meetings and public and bank holidays. The SBA can be completed in class when assigned by a teacher and in the event that you fall behind then you are required to catch up in the evening.

### **Requirements**

**It is the requirement of each student to complete the section of the SBA as per the deadline schedule even if they are not sitting the external CXC examination. Students that misses a deadline will be duly informed along with their parents/guardians and required to do MANDATORY evening classes until the section is completed.**

### **SECTION DEADLINES**

#### **DATABASE MANAGEMENT (All Steps)**

This part of the SBA is due no later than: TBA

#### **WORDPROCESSING (All Steps)**

To Be Announced (TBA)

#### **SPREADSHEETS (All Steps)**

This part of the SBA is due no later than: TBA

#### **PROGRAMMING (All Steps)**

This part of the SBA is due no later than

- . Pseudocode/Flowchart: TBA
- . Pascal Program: TBA

#### **FINAL SUBMISSION**

All SBA PROJECT will be due no later than: TBA



### **SBA (Ministry Of Health)**

There is an outbreak of Chic-V in Ambergris Caye and the Ministry of Health has set up a taskforce (Chic-V Eradication Task Force) to monitor the affected areas on the island. The four (4) areas affected are San Pedro Town, San Mateo, San Pedrito & DFC Area; the number of reported cases is increasing since the first case was confirmed January 1, 2017. As of October 2017, a total of 50 confirmed cases were reported by personnel from the three (3) health center for the affected areas.

You have been hired as an Information Systems Specialist whose duties include:

- Recording and monitoring information collected from the polyclinic of persons who have contracted the disease in a properly maintained database.
- Recording information, calculating costs, analysing and presenting information on patients visits gathered from the areas using electronic spreadsheets.
- Prepare letters to be sent to health officials, et al. of the affected regions inviting them to attend a meeting to assess the control measures implemented to combat the spread of disease; create a brochure to inform the public of the dangers of the disease associated and measures to combat the spread of disease symptoms using a Word Processor.
- Develop and test an algorithm using Pseudocode or Flow Chart.
- Write a code to implement the algorithm using Pascal.

## DATABASE MANAGEMENT

Create a database that stores information on all Chic-V patients received from personnel at the different health centers in the affected areas.

### TABLES

□ *Patients*

Fields	Data Description
<b>Registration Number</b>	Alphanumeric with 7 characters in the format CV-XX-000 where CV identifies the disease, XX a 2-digit code that identifies the patient first and last name initials and 000 a 3-digit number. E.g. CV-JD-001 for a patient named John Doe.
Title	Mr., Mrs., Ms., Dr.
Last_Name	Patient's Last Name. <i>(Required)</i>
First_Name	Patient's First Name
Gender	Male or Female
Age	Patient's age in years must be between 5 and 99 years old. Create a validation rule with an appropriate message for this field.
Address l	Patient's street address
Area	Patient's area of residence; List to include San Pedro Town, San Mateo, San Pedrito, DFC Area
Date of Birth	Patient's Date of Birth (Must match the age)
Telephone	Patient Cellular phone. 7 numbers in the given format. Eg: 601-5123

□ *Visit*

Fields	Description
<b>Visit_Id</b>	An auto number identifying the visit.
Registration Number	Alphanumeric with 7 characters (The patient registration number from the patient table)
Date of Visit	Patient's Date of Visit to the Health Clinic. Date of visit. (Medium Date).
Health Centre Type	Using a drop down list to select the Type of health Centre : T1, T2 or T3. <i>(Required)</i>
Blood Test	Yes or No indicates whether or not blood test was ordered.
Insurance Code	A 4-digit code identifying the Insurance. This is the same insurance code used in the insurance table. Company <b>MG01, MS02, WD03 NN04.</b> (Required)
Fees	Doctor's Fees based on the following: T1: \$50.00, T2: \$100.00, T3: \$200.00

## Insurance

FIELD	DESCRIPTION
<b>Insurance Code</b>	4 Digit Code identifying the Company MG01, MS02, WD03 NN04
Insurance Company	Name of Insurance Company: Magicor ( MG01), Medisure(MS02), Warden (WD03) Or None (NN04). <i>(Required)</i>
Coverage	Percentage Coverage: List to include MG – 80%, MS – 70 %,WD – 75% and NN -0%

### TASK A

- Design tables using appropriate data types, set field properties and establish the relationship ensuring referential integrity is enforced.
- Edit the Fees field in the Visits table to be able to enter currency values.
- Edit the Coverage field in the Insurance table to be able to enter decimals. When entering records convert the percentage given to its decimal equivalent.
- Enter thirty (30) patients who visited the polyclinic during the given period for 2017. Enter all information for each patient. Use both male and females, a range of ages and there must be at least 6 or more patients for each of the affected areas.
- Enter the four insurance companies given with the different coverage.
- Enter one visit for each patient with the date of visit between the range of January 1, 2017 and June 30, 2017. Ensure that all different health center type, insurance codes and fees are used between the visits.

### TASK B

- Create a form for the patients table. Use layout view to edit the form title to read CHIC-V PATIENTS. Apply text formatting to the form title, field labels and cell shading to the field text boxes. Insert a logo for the form (*Use any of the logos from the SBA folder on desktop*)

### TASK C (The first 3 queries must show 3 or more records in the resulting dynaset)

- Create a query that will show the registration number, last name, first name, date of visit, name of insurance company and insurance coverage of all patients for the San Pedrito area. Sort by registration number in ascending order. Name the query San Pedrito Patients.
- Create a query that will the registration number, last name, first name, age, date of visit of all the female patients who are eighteen years or younger. Sort by last name and first name in alphabetical order. Name this query Female Patients Under 18.

- Create a query with a calculated field named Insurance\_Amount to store the contribution amount by insurance companies for each patient ( $\text{Insurance\_Amount} = \text{Fees} * \text{Coverage}$ ). Include the fields registration number, Visit ID, date of visit, fees, coverage. Sort in descending order by date of visit. Name this query Insurance Amount.
- Create a new field in the VISITS table called GST that will store only the tax collected on the fees for each visit. Create a query that will update the GST field to hold 12.5% tax on the fees. Name this query as Tax on Visit Fees.

#### **TASK D**

- Prepare a report which list the patient registration number, title, last name, first name, gender, age, area, telephone number. Sort the report in alphabetical order by last name and first name. Insert an appropriate logo and the report title should read "Patients Listing. Give the report an appropriate name.
- Prepare a report which lists the names of all patients insured by any one of the insurance company of your choice. The report must show each patient's title, last name, first name, registration number, Date of Visit, Fees, insurance amount ( $\text{Insurance Amount} = \text{Fees} * \text{Coverage}$ ) and area. The report should be grouped by area and sorted by last name and first name. For each grouping level the report must indicate the total fees, total insurance amount and grand totals. The report title should read 'Patients Insured by *company of your Choice*'. Give the report an appropriate name.

**(CHECK YOUR RECORDS, TABLES, FIELD NAMES, FORM AND REPORTS FOR ANY SPELLING ERRORS).**

**(CREATE THE E-SBA PORTFOLIO FOR THE DATABASE MANAGEMENT SECTION)**

## SPREADSHEETS

- a) Generate a query with all patients' information to be imported into the spreadsheet for analysis and budgeting; the query should include: patient registration number, first name, last name, gender, age, area, date of visit, health center type, insurance code, whether or not the patient did a blood test. Save the query as *Spreadsheet Export Query*.
- b) Import the query into your spreadsheet. Name the workbook your login name – CHIC-V Outbreak (For example: *misantos – CHIC-V Outbreak*) and name the worksheet Imported Data.
- c) Using the name manager, give your imported data the name CHICV.
- d) Copy and paste special the imported data into a new worksheet called Patients Info1 and apply appropriate formatting.
- e) Note that accounting format will be applied to all money values in this workbook.
- f) The following is the fees structure for all patients that visit the clinics in San Pedro:
  - i. Registration Fees for all health centers is \$50.00
  - ii. A flat rate of \$225.00 is charged for each blood test.
  - iii. A 10% handling fee is to be applied to the cost of each blood test
- g) Modify your worksheet by adding the following columns (in the specified order), Registration Fee, Blood Test Amount, to calculate the amount each patient should pay for a medical examination at the health centers.
- h) Type out the values given in steps f-i) in the respective columns. In Blood Test amount, use a conditional formula to show the flat rate for each blood test only if the patient did a blood test.
- i) Create a new column at the end of your data and label this new column: “Blood Test Handling Fees”. There is 10% handling fee charged on the cost of each blood test. Place this value in a cell by itself at the bottom of your data and use absolute cell referencing to calculate the blood test handling fee paid by each patients for a blood test.
- j) The Government of Belize has decided to implement a consultation fee based on the health center code. The consultation fee varies depending on the health center visited by the patients. The following table shows the breakdown of the consultation fees based on the health center code:

Health Center	
Type	Consultation Fee
T3	\$65.00
T2	\$70.00
T1	\$75.00

Insert a column to the right of the column labeled “Blood Test Handling Fees” and label this new column: “Consultation Fee”. Type the table array shown on a separate sheet, Fees, and using the lookup function fill in the corresponding fee for each of the patients.

- k) Create a new column at the end of your data and label this new column: “Total Medical Bill” and then calculate by adding the Registration fee, Blood Test Amount, Handling Fee and Consultation Fee.
- l) Some patients have health insurance coverage while others do not. The portion of the total medical bill that is covered by health insurance is outline in the table shown below. Type out the following table array in the worksheet, Fees.

Insurance Code	Insurance Name	Coverage
NN04	None	0%
MS02	Medisure	70%
WD03	Warden	75%
MG01	Magicor	80%

Insert two columns to the right of the column labeled “Total Medical Bill” and label these new columns: “Insurance Amount” and “Patient’s Amount” respectively. Use the lookup function to calculate the amount of the total medical bill will be paid by the insurance company. The patient’s amount is the amount that the patient will pay after insurance amount is deducted from the total medical bill.

- m) Total all money values columns.
- n) In a section of the spreadsheet beneath the patient’ data create a small table to list the different area and the number of patients. Use an appropriate count function to calculate the number of patients per area – do not conduct a manual count.
- o) Generate a pie chart showing the distribution of the number of patients per area. Include a title and percentage, values on the chart.
- p) At this point create a copy of your worksheet, Patients Info 1, and save it as *Patients Info 2*. (You are not to use the Patients Info 2 for any of the following steps).
- q) Using the **Patients Info 1** worksheet, an error was made in the data entry process and two patients were accidentally omitted from the list. Insert information regarding two patients after the fifth patient on your list. Include all their pertinent data. One patient is from San Pedrito and the other is from San Mateo. Shade the row of the two new records in **grey**.
- r) Generate a bar chart illustrating the distribution of money paid by each patient (Patient’s Amount) and their patient registration number. Include a title, axes labels, chart table, gridline, legend on the chart.
- s) The World Health Organization (WHO) wants to implement an assistance program for the patients from the underdeveloped areas of San Pedrito and San Mateo. Using advanced filters (complex criterion); extract the records of these patients to another worksheet, WHO Assistance.

- t) In an effort to further improve the health system in San Pedro Town, the government has decided to create a budget for the upcoming year that will enable it to focus on the main areas that should be addressed and developed within the town health care facilities. The funding for these development programs will come from several sources: total proceeds from medical bill will provide 1.5% of funding (use total from spreadsheet); donations 4%; grants/loans 8%; and the government will subsidize the remaining 86.5%.
- u) The main sectors of the health sector to which the funding will be allocated are as follows: infrastructure development 30%; medicines and pharmaceutical products 20%; medical technology upgrade 35%; and training programs for personnel employed at the health center 15%.
- v) On a separate worksheet, design a table to perform budgeting for the upcoming fiscal year. The table should include sources of funding for the health development programs and the projects to which these funds will be allocated (including percentages and amount distributions). Total percentage must not be over 100%.

The worksheets **MUST** be in the following order:

1. Imported Data
2. Patients Info 1
3. Fees
4. Pie Chart
5. Patients Info 2
6. Bar Chart
7. WHO Assistance
8. Budget

## WORDPROCESSING

### Task 1

A) The Ministry of Health in San Pedro is embarking on a mission to: (a) assess the control measures being implemented to combat the spread of the disease, (b) review the resources of the budget for the next phase of the project, and (c) to discuss ways in which the health insurance providers will help in funding the fight against Chic-V by paying their portion of the medical bills for patients they insure. You are the head of the task force assigned the task of preparing a report that will be addressed to the Minister of Health in Belize. The main aim of the report will be to provide detailed analysis regarding the patient visits in the affected areas in San Pedro during the period in 2017.

B) The report should include the following information:

- (i) Develop a letterhead for use by the Ministry of Health CHIC-V outbreak task force. The letterhead should include the Ministry of Health, address, telephone number, fax and email address and a graphic. The logo is the same logo used in database and spreadsheet sections. The letterhead should be placed in the header.
- (ii) An appropriate cover page with the a graphic and table of contents summarizing the contents of the report. The report is to be done on a letterhead created by you for the Ministry of Health.
- (iii) Open the report by mentioning that you have been assigned the task of preparing a Report for the year 2017 on the CHIC-V Outbreak virus in the different areas of the island. You should also include in an opening paragraph an overview of the CHIC-V virus and the symptoms and treatment of the disease.
- (iv) The first section of the report should include the proposed budget as it relates to the town health care facilities. This will be based on the budget analysis from the spreadsheet. You will be expected to explain the main details of the budget in a short paragraph.
- (v) You are to import the pie chart illustrating the distribution of the number of patient payment amounts. You will briefly analyze the findings as demonstrated by the chart. You should also make a short recommendation discussing ways in which the health insurance providers will help in funding the fight against Chic-V by paying their portion of the medical bills for patients they insure.
- (vi) Import the report showing the patient listing. Beneath this report, discuss three (3) control measures being implemented to combat the spread of the disease on the island.
- (vii) Conclude the report with an overall assessment of the experience the task force encountered and what is the expected effects of the disease on the island population.

## **Task 2**

- A) Your expertise is being sought to prepare an attractive 3 column brochure to alert the public on the dangers of the disease and the associated signs and symptoms. The main target-market for this brochure is the general community of San Pedro.
- B) The information to be included but not limited in the brochure are as follows:
- (i) A map of San Pedro including a brief description of the main areas of the island and labelling the approximate location of the affected areas. (Back Cover)
  - (ii) Illustrate at least three (3) preventative measures with two or more graphics showing how to combat the spreading of the disease. (Inside)
  - (iii) A logo and the name of the disease with the logo from the letterhead at an appropriate location (Front Cover).
- C) Include appropriate pictures or graphics to enhance the appearance of the brochure.
- D) Create a one-page three paragraph letter using the same letterhead as the one used for the previous report inviting the patients from the San Pedrito and San Mateo areas who benefitted from the WHO Assistance program to come in for a follow-up visit to the clinic starting on January 5, 2019 at 2:30pm at the Dr. Otto Polyclinic. The purpose of the visit is to do a blood test along with a complete medical check to ensure that the patient is completely cured from the disease. A table is to be inserted at the bottom part of the letter (not in the footer) detailing the different times that patients with different surnames can visit the clinic and the attending physician and contact number and email of the doctor. The letter is to be merged with a data source query from the database showing only the patients of San Mateo and San Pedrito and their contact information.

## PROGRAMMING

### Problem-solving

1. Develop an algorithm or write pseudocode to keep track of the patient amount, and also the revenue collected as taxes, from a number of tourists (use of flowcharts also accepted). The algorithm should accept the registration number, age, and the money patient amount paid for the clinic visit for the first ten (10) patient records in your database.. A discount of 5% is given to each patient on their visit. The pseudocode should allow the user to read in the patient registration number, age, patient amount paid. It should then calculate the 5% discount and the new amount the patient will pay. Display the patient registration number, age, patient amount, discount rate, discount given new patient amount; it should also be able to search/replace the patient record for any specified patient – based on the patient’s registration number.
2. Using data from the patient table (database management section) extract the patient registration number, age, patient amount paid by the patient. Design and execute a trace table that accepts the data specified above. The trace table should show the running totals for discount and new patient amount; and keep track of the number of patient entered until the loop stops.

### Program Implementation

3. Using the programming language Pascal, write program code to implement the algorithm in Step (1) only above using arrays.

**SUBMIT YOUR DIGITAL PSEUDOCODE & PASCAL PROGRAM AND COMPLETE YOUR E-SBA PORTFOLIO.**

You did it!  
*Congratulations*

