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ST BENEDICT'S COLLEGE



SUBJECT GRADE EXAMINER NAME CLASS	Information Technology Practical	DATE	July 2013
	11	MARKS	120
	Mrs Kench	MODERATOR	Mr Gill
		DURATION	3 Hours

COGNITIVE LEVELS			
LOW ORDER	30 %	MIDDLE ORDER	40 %
		HIGH ORDER	30 %

STUDENT'S RESULT COMMENT	
TEACHER'S SIGNATURE PARENT'S SIGNATURE	

QUESTION 1**40 MARKS**

A game lodge has a competition where visitors record their sighting of animals they see on a game drive. They record the date, animal type, the number of animals seen, whether the animals were young or old and the ID of the ranger who was with them when they saw the animals. The game lodge has also stored the details of each ranger. These being the ranger's name, surname, rank and date appointed.

The details of both tables are shown below. Only the first few lines of the data in the tables are shown.

Design of tblSightings Table

tblSightings		
Field Name	Data Type	
SightingID	Number	A unique ID given to each sighting
SightingDate	Date/Time	The date of the sighting
Animal	Text	The animal that was sighted
NumAnimals	Number	The number of animals that were sighted
Young	Yes/No	If there were any young sighted
RangerID	Number	The ID of the ranger that sighted the animals

Data in tblSightings Table

tblSightings					
SightingID	SightingDate	Animal	NumAnimal	Young	RangerID
101	2010/05/03	Giraffe	2	True	3
102	2010/04/05	Impala	23	False	5
103	2010/01/15	Lion	13	False	7
105	2010/06/02	Aardvark	1	True	8
106	2010/04/03	Elephant	1	False	3
107	2010/06/21	Lion	23	False	13
108	2010/04/21	Elephant	32	False	1
109	2010/05/08	Rhino	13	False	2
110	2010/06/23	Rhino	13	False	3
111	2010/05/29	Elephant	10	False	15
112	2010/03/25	Aardvark	7	True	19

Design of tblRangers Table

tblRangers		
Field Name	Data Type	
RangerID	Number	A unique ID for each Ranger
Name	Text	The name of the ranger
Surname	Text	The surname of the ranger
Rank	Text	The rank of the ranger
DateAppointed	Date/Time	The date the ranger was appointed

tblRangers					
	RangerID	Name	Surname	Rank	DateAppoin
+	1	Jada	Harrison	Park	2002/10/18
+	2	Kenyon	Carney	Park	2007/04/30
+	3	Dylan	Pollard	Field	2005/05/13
+	4	Sylvester	Walls	Senior	2003/11/01
+	5	Urielle	Wynn	Park	2007/12/01
+	6	Giselle	Head	Field	2003/06/27
+	7	Amos	Roach	Recruit	2005/06/26
+	8	Tobias	Paul	Park	2004/09/19
+	9	Odessa	Head	Section	2003/06/07
+	10	Charles	Buckner	Section	2008/08/07
+	11	Ariel	Hooper	Recruit	2002/08/31

- 1.1 Sort the sightings table in alphabetical order of animal and then by the number of sightings in decreasing order. (4)
- 1.2 List all the Lions spotted in July. (5)
- 1.3 List the surnames of all the rangers whose surname's end in "on". (4)
- 1.4 Generate a new code name for each ranger using the first three letters of their first name and the second and third letter of their surname. Name this generated field CODENAME. (6)
- 1.5 Determine the number of years each ranger has been working for the company. List the ranger's surname and the number of years. List the rangers in descending order of years worked. (7)
- 1.6 List the sightings where the animals were young and there were less than 20 animals. (4)
- 1.7 Add a new sighting of 3 adult Rhino. Use Ranger Id of 5 and today's date. (4)
- 1.8 We do not want to store information about Rhino sightings. Change all occurrences of the word "Rhino" to be "Long horned hippo" in the sightings table. (3)
- 1.9 Remove "Lev Sparks" from the rangers table. (3)

QUESTION 2**OOP****80 MARKS**

A competition has been created to record the person who has seen the most sightings. Each sighting has been recorded in a text file called **Sightings.txt**. The file records the visitor's name, the number of large, medium and small animals that they have spotted.

The file has the following format:

First name Surname#Large#Medium#Small

```
Susan Jones#23#13#209
Fred Smith#12#78#93
Jack Johnson#67#8#9
Amy Beerhome#34#18#85
Jimmy Cater#8#0#1002
Patrick Swaysing#2#78#809
Norma Jean#65#84#122
Doris Day#2#3#7
```

- 2.1 Create a class called **Sighting**. Add fields to store the name, the number of large, medium and small sightings. Use appropriate types for each field. (4)
- 2.1.1 Code a parameterised constructor to assign values to all the fields. (4)
- 2.1.2 Code an accessor method for the name field. (2)
- 2.1.3 Code a typed method **getScore** that will calculate the sum of all sightings after multiplying the number of large animals by 4, the number of medium animals by 3 and the number of small animals by 2. Return the result with an appropriate type. (6)
- 2.1.4 Code a typed method called **reformatName** to return the name in the format: SURNAME, INITIAL; without changing the value of the name field. For example "Susan Jones" will become JONES, S. (6)
- 2.1.5 Code a typed **toString** method to return all the fields separated by tabs. The name must be in the format of SURNAME, INITIAL. (4)
- 2.1.6 Code a typed method called **nameAndScore** to return the name of the visitor (in the original format) together with the score separated by three spaces. (4)
- [30]
- 2.2 Create a class called **SightingArray** with a field to store 50 sightings and to record the number of elements in the array. (5)
- 2.2.1 Code a constructor method to instantiate the elements in the array using the text file **Sightings.txt**. (10)
- 2.2.2 Code a **toString** method to display all the elements in the array. (5)
- 2.2.3 Code a method to **sort** the array in descending order of the scores. (8)
- 2.2.4 Code a method called **top10** to display the top 10 visitors in descending order of scores. (5)
- 2.2.5 Code a method called **search** to find a person and all their information given their name. The surname of the person must be sent as a parameter. The method will return a **Sighting** object. The method should take advantage that the array has been sorted. (10)
- [43]
- 2.3 Code an application called **SightingsApp** that will:
- 2.3.1 Instantiate a **SightingsArray** object. (1)
- 2.3.2 Display all the sightings. (1)
- 2.3.3 Sort the array and then display the top 10 sightings. (2)
- 2.3.4 Search for a particular sighting given the persons surname. Display an appropriate message if the sighting is not found and the details of the sighting if it is found. (3)
- [7]