APPLICATIONS OLYMPIAD 2018

FINAL ROUND

Instructions (READ these before proceeding!)

1. You have **four** hours; allocate your time according to the marks allocated.
2. You may produce the material **in any order.**
3. Make sure you have something to submit for **each** of the sections. Go back to improve documents if time allows.
4. The rules are similar to those for a Grade 12 practical examination and include such items as:
    a. No communication with each other.
    b. No electronic devices such as flash drives, iPods, phones, etc.
    c. Do nothing to disturb other participants.
    d. Ask permission to get up and leave your station.
5. You have access to the internet to find documents and help. **Beware as this may be a trap that tempts you to use up available time for research rather than production.**
6. You have to acknowledge the source of every illustration, document or quotation you use.
7. You may NOT use e-mail facilities or other communication apps during the contest.
8. It is important to **save** every step of your work for later evaluation.
9. Before you hand in, please ensure that you have saved all files in the folders as described on the attached Appendix 1. Check also that all the files open correctly.

After the event you may be asked to demonstrate your results to the judges.

BACKGROUND

This year's Applications Olympiad Finals are all about the cycle race known as the Cape Town Cycle Tour. Formerly known as the Argus Cycle Race, this scenic event is the largest timed cycle race in the world. There is a Lifestyle week in the nine days preceding the Cycle Tour. It includes a Mountain bike challenge on the Saturday, and a Junior cycling event on the Sunday. All proceeds from the Cape Town Cycle Tour and its sub-events in the Lifecycle Week go to its two beneficiaries, namely the Pedal Power Association (PPA) and The Rotary Club of Claremont. In excess of R45 million has been distributed back into social upliftment and cycling development in the last 5 years through PPA and Rotary. The PPA uses its share of the proceeds to develop cycling in various communities and to promote recreational cycling throughout South Africa. The Rotary Club of Claremont uses its share across numerous projects that improve the lives of those in need in the local community.
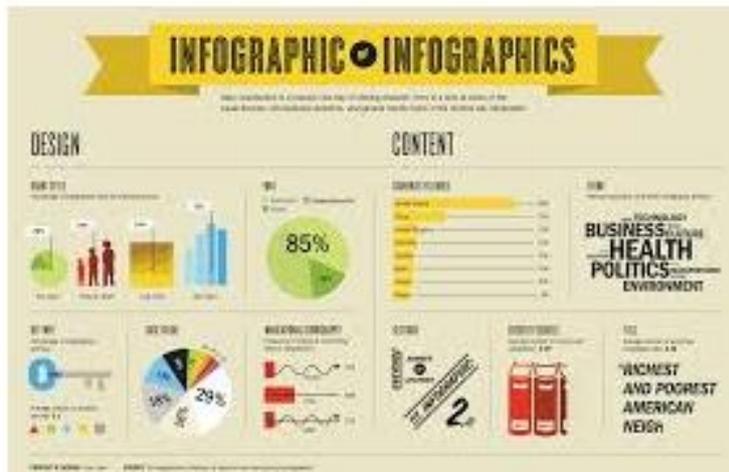
1.   DOCUMENT

The cycle race has been attracting an increasing number of participants ever since it started in 1978. Unfortunately the average age of the participants has also been increasing over recent years.

You are asked to prepare an infographic to attract more teenagers – ages 13 to 19 and both male and female – to the event. Your infographic must be suitable to be printed in A3-format. The choice whether to do it in portrait or landscape is left to you. You have to use the programs available in the versions of Microsoft Office provided to you.

Some of the factors that may influence someone's decision to participate in the cycle race include:
- Visiting Cape Town
- Cycling gets one fit
- Teenagers have been among the top finishers in the past
- One need not have an expensive bicycle to participate
- One may be able to find a sponsor
- Discovery Vitality points may be donated to a deserving participant

An example of an infographic:

You may also search the internet to find out more about infographics. Illustrations and graphic images available on the internet may be used provided you give full credit in accompanying documentation. If the illustration or graphic image is in the public domain you have to state this. You may also create your own illustrations. Please keep in mind that searching the internet takes time. You only have limited time so use it wisely.

Marks will be allocated as follows:

1. How you use the information provided in one or more of the worksheets in the <u>spreadsheet section</u>. It is not the quantity of information that matters but the quality of its use and the way it is presented. (6)

2. Use of information that is extracted from one or more tables in the <u>database section</u>. Again, it is not the quantity of information that matters, but the quality of the way you use it and the how you present it. (6)

3. Effective use of illustrations. (6)

4. Your product will be judged on your creativity and how effective it will be – in the eyes of the judges – to convince teenagers, both male and female, to take part in the cycle race, without putting off current participants. (12)

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## 2. SPREADSHEET

Tasks

Task 1.1

On the worksheet 'Province' determine the number of entrants for each province for all the results supplied.

Task 1.2

Add a pie chart to the 'Task 1' worksheet. It must show a breakdown of the records on the 'Person' worksheet but only for those persons living in the nine South African provinces. Format the chart so that it looks similar to the one below.
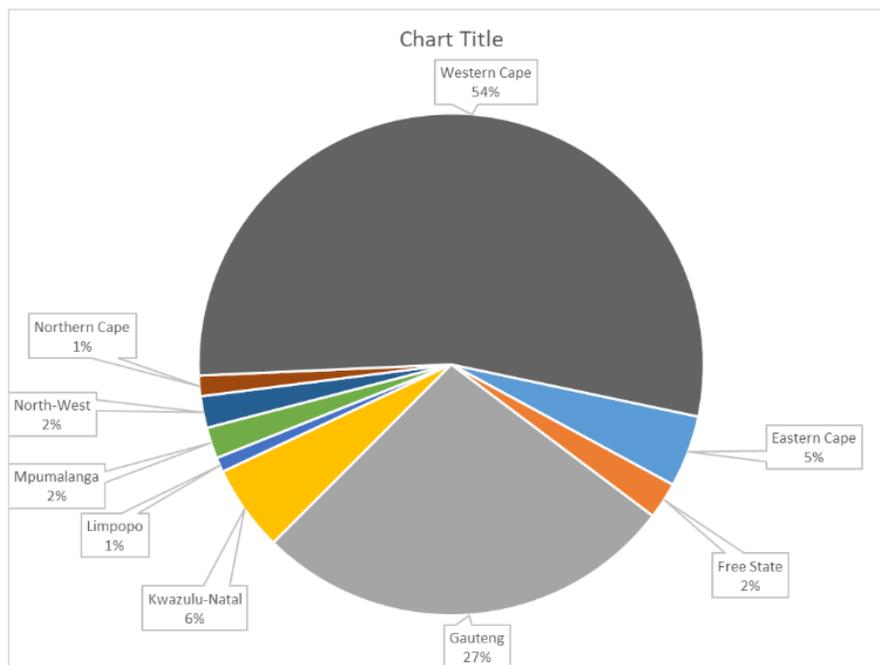
Task 2

The worksheet called 'Task 2' contains a form, which the organisers wish to use to research information about the Cape Town Cycle tours. Use lookup or other appropriate functions to insert the required information into the cells in column C. The displayed results should be the same as the example. The user must select the event from a drop-down list and the remaining information is then automatically populated. Use the race shown below to test your work.

Event	2014 Cape Argus Pick n Pay Momentum Cycle Tour
Date	Sunday, 09 March 2014
Distance	109 km
Entries	42547
% Finished	75%
Winning Time	02:39:31

Task 3.1

Use a lookup or other appropriate function to complete the column *racedate* on the CT Results sheet. It must contain the date on which the race was held. Please remember to save before applying any formula to all records.

Task 3.2

Complete the column *age* on the same worksheet. Calculate the age of the cyclist on the date of the race, round to the nearest whole number. (the first 3 ages should be 31, 23 and 34).

Task 4

The worksheet called 'Task 4' contains a subset of the date from the 'Under 26' worksheet. Create a pivot table on a new worksheet (call it 'PivotProvince') which shows the number of finishers by province (rows) and year (columns).

Task 5

Selecting only riders who were 14, 15, 16, 17 or 18 on race day, copy the *routeid* column and the *age* column from the 'Under 26' sheet to the worksheet called 'Task 5'.

   A)   Rename the heading of the first column from *routeid* to *year*

   B)   Create slicers for both the *year* and *age* fields.

   C)   Create a line chart, which allows a user to select either the year or the age.

Task 6

The organisers wish to give a special award to any 'Under 26' cyclist whose birthday fell one day before, on or, after the day of the race they rode in. Determine which cyclists (showing at least the fields; *riderid*, *dateofbirth* and *eventdate*) would receive the award for each of the different years in the 'Under 26' worksheet. Copy any columns you may need to the worksheet called 'Task 6' and complete the solution of that worksheet.

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3.   DATABASE

Preamble

You have been provided with a database of information from the Cape Town Cycle Tour (formerly The Argus Cycle Tour). Some of the information dates back to the first race in 1978 and other information has been restricted to only the last 12 years.

The following tables are found in the database:

Entrants   Information about entrants dating back to the first race. Names and surnames have been removed in order to protect the privacy of the entrants.

Province   A table with the names of the current nine provinces as well as former provinces. Some neighbouring countries are also included in this table.

Event   A table with date, name and distance of the events dating back to 1978. From 2008 onwards the year in which the race took place is used as the EventID.

CT Results   A table with the results of the cycle tour between 2008 and 2018. Note that there are no results for 2017 as the race was cancelled due to strong winds.

Finishers   A table with the number of entrants who completed the race each year.

Relationships between the tables have already been created for you.

Tasks

The organisers would like your assistance in providing information regarding the races, especially between 2008 and 2018.

Remember to save all your answers, even if incomplete. Make use of meaningful names such as qT1 for the query in Task 1, rptT4 of the report in Task 4, frmT5 for the form in Task 5, etc.

Task 1

Create a query that will show the total number of entrants for each province from 1978 to 2018. Your query should display the name of each province and the total number of entrants per province per year.

Task 2

Create a query to show the number of entrants who are South African. Group the results by gender. Create a second query to show the numbers of entrants, grouped by gender, who are not from South Africa.

Task 3.1

Create a query to display the results of all participants for a particular year from 2008 onwards. When the query is run it should ask the user to enter the year. Display the year (RouteID), race number, race position and race time.

Task 3.2

Extend the previous query to display results by year as well as gender. The query should first ask for the year, and then the gender.

Task 3.3

Extend the previous query to allow the user to select the start group in addition to year and gender. Add the start group and group position to the output.

Test your query with the following set of data: Year 2010, Gender F and Start Group #. 23 records should be displayed.

Task 4

Create a report to display the average speed of the winner in each year from 2008 to 2018 (excluding 2017). Average speed (in km/h) is calculated by dividing the race distance (in km) by the time (in hours).

Task 5

Create a form to display the details of the entrants. Display one record at a time. Display the results for each person in a sub form.

You can decide which fields to include in the sub form. You can also decide which layout would be most suitable.

Apply appropriate formatting to the report.

Task 6

The organisers would like to include the 2018 results in a website. Extract all the results for 2018. Create a new table called Results2018 in which these results are stored. Export the new table as html document.

Task 7

The table showing information about the number of people who entered each year (from 2008) was omitted from the database. Import the data from the Entries worksheet in the spreadsheet you used for the Spreadsheet questions into a table in the database. Use the information in this new table as well as existing data to create a report to show what percentage of entrants actually completed the race.

Task 8

Create a navigation form to allow quick access to the form and reports you have created in the previous tasks. You may choose the layout of the form. Apply appropriate formatting.

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