



Computer Applications Olympiad

A project of the Institute of IT Professionals South Africa

Tel: 010 109 6705 ♦ Fax: 011 315 2276 ♦ P O Box 1714, Halfway House, 1685, South Africa
info@olympiad.org.za ♦ www.olympiad.org.za

FINAL ROUND QUESTION PAPER 2021

1. This question paper consists of three sets of tasks: A. Excel tasks, B. Access tasks and C. Infographic tasks. You may do the tasks in any order. Please note: the tasks for section C depend on work done in sections A and B.
2. You are allowed to browse the internet for research and help during the 3 hours of the contest.
3. You are allowed to use your own earphones to listen to YouTube videos for research purposes.
4. You are NOT allowed to make contact with external people, use your cell phone or email. You may only access your email to download data and submit your work.
5. The Reddit feature amounts to communication with someone outside the competition and is therefore not permitted to be used.
6. We have permitted the latest versions of Office. There is no restriction on what functions can and can't be used. There are no specific questions in either Excel or Access that require participants to use specific functions.
7. Your work must be clear, easy to use and easy to understand.
8. The files used in the completed tasks must be uploaded to your Solutions folder that was sent to you via email at 09:40 this morning.

SCENARIO

Tennis is a racket sport that can be played individually against a single opponent (singles) or between two teams of two players each (doubles). Tennis is played by millions of recreational players and is also a popular worldwide spectator sport. The Association of Tennis Professionals (ATP) is the governing body of the men's professional tennis circuits - the ATP Tour, the ATP Challenger Tour, and the ATP Champions Tour, while the Women's Tennis Association (WTA) is the principal organising body of women's professional tennis. The four Grand Slam tournaments (also referred to as the Majors) are especially popular: the Australian Open played on hard courts, the French Open played on red clay courts, Wimbledon played on grass courts, and the US Open also played on hard courts.

Knowing your IT skills, the local tennis club (or school club) has asked you to promote tennis after a year of decline in interest due to COVID. They want you to show what the top professional players have achieved over the past 2½ years. The tasks in Excel and Access are given to show some of the information which can be obtained from the data you have been given.

A. EXCEL TASKS

The Excel data for the final is contained in the file called “**2021 CAO Final Data.xlsx**”.

- This workbook contains 4 worksheets.
- Any data, or solutions to tasks, from this workbook may be used in your infographic. While there are only 4 tasks which will be marked you may create any additional lists, tables, charts, etc. which can be used in your infographic.
- Remember that formulae must be used to obtain all results. You may only type in values if you can't obtain a result and you need the results for a subsequent question or wish to use it in your infographic.

Worksheets:

Main Data: this sheet contains a list of matches completed by both men and women since the start of 2019. Each record contains the details of both the winner and loser of that match.

Field Info: this sheet provides a brief description of each field in the *Main Data* worksheet.

Players: this sheet contains details about individual players. Name, first name, surname, their gender, whether they are left-handed or right-handed, their height and their nationality.

Australian Open Ladies: this sheet contains all the results for the 2019, 2020 and 2021 Australian Open Ladies matches. The records are in pairs with one record containing details for the winner of the match and the other record containing details for the loser of the match.

Dashboard: You will use this sheet in one of the required tasks.

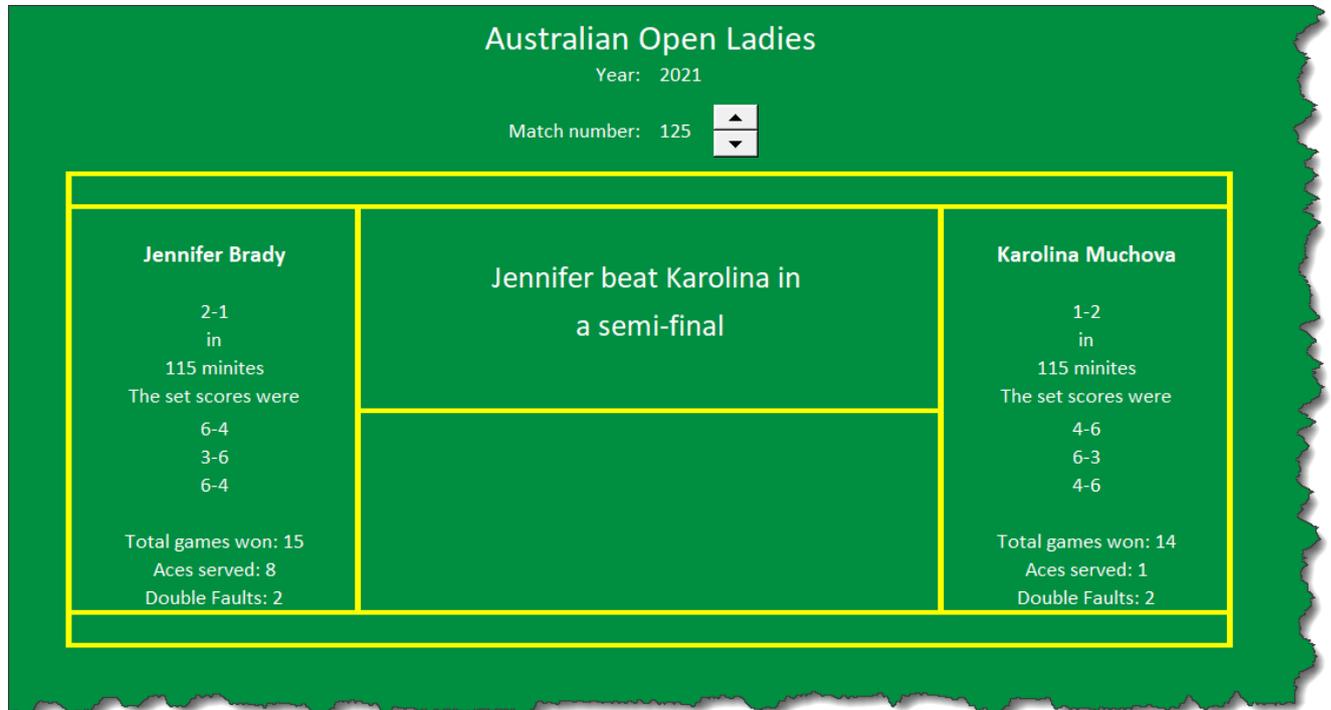
Tasks

1. Complete the column on the ‘*Main Data*’ sheet called **Set Score**. To calculate this, you will need to look at the **best_of** field. When you see a 3 set (‘best_of’) match and there are two sets played the result will be 2-0, if there were 3 sets played the result will be 2-1. In 5 set matches, if 3 sets were played this indicates 3-0, 4 sets played will be 3-1 and 5 sets played will be 3-2. Matches with no sets played (a ‘walk over’ as the other player could not play) or where the player retired (RET at the end of the set score) the result must be indicated as “N/A”. See the example below.

score	best_of	Set Score
6-7(5) 6-2 6-1 0-0 RET	5	N/A
7-6(4) 7-6(2)	3	2-0
7-6(9) 7-5 6-3	5	3-0
W/O	3	N/A
3-6 6-4 6-2 4-6 7-6(2)	5	3-2
6-2 RET	5	N/A
7-6(1) 6-7(3) 6-3	3	2-1
7-6(6) 6-3 3-6 6-1	5	3-1

2. Complete the field called **Wild Card Win** on the ‘Players’ worksheet. This must indicate how many times that player was given a ‘Wild Card’ entry (**Winner_Entry** field contains a WC) to a tournament and then played in the final match and won it. All the tournaments listed require a player to be seeded or qualify to play in that tournament. If a player does not meet that requirement the organisers may allow them to play as a ‘Wild Card’. Idea: You could use some of these results to add to your infographic.

3. Complete the field called **2019 matches played**. This must indicate how many matches (win or lose) the player played in 2019. Idea: You could use some of these results (calculate a percentage win:lose ratio) to add to your infographic.
4. Create a dashboard similar the one shown below. Use the data in the worksheet called 'Australian Open Ladies'. You may supplement it with information from the 'Players' worksheet.



- 4.1. The user must be able to select one of the years 2019, 2020 or 2021. Use data validation to achieve this.
- 4.2. Allow the user to select a match number. The match numbers start at 1 and go up to 127.
- 4.3. Create a value you can use for getting the correct record. The index field for the Australian Open Ladies sheet contains the year (two digits), the match number in 3-digits and a letter indicating if that record is for the winner or loser. Using the values the user selected, (year and match number) insert a text string in cell U1 and cell V1 which will match a value in the index field.

For the above example U1 would contain 21125W and cell V1 would contain 21125L.

- 4.4. Now add the other information to the dashboard. The details on the left are for the winner and the details on the right for the loser. The details are the players full name, the set score, the time, the score in each set, the total games won, the number of aces the player hit in the match and the number of double faults the player hit in the match. There is a blank line if the result of the match only contains 2 sets (see the last example shown below).
- 4.5. The details in the centre must show only the players first name and a description indicating the round.

Further examples (with different records selected) of dashboards are shown on the next page.

Australian Open Ladies

Year: 2019

19001W 19001L

Match number: 1



Simona Halep

2-1
in
131 minites
The set scores were
6-7(2)
6-4
6-2

Total games won: 18
Aces served: 4
Double Faults: 0

Simona beat Kaia in
a 1st round match

Kaia Kanepi

1-2
in
131 minites
The set scores were
7-6(2)
4-6
2-6

Total games won: 13
Aces served: 4
Double Faults: 5

Australian Open Ladies

Year: 2021

21080W 21080L

Match number: 80



Elina Svitolina

2-0
in
77 minites
The set scores were
6-4
6-3

Total games won: 12
Aces served: 4
Double Faults: 1

Elina beat Cori in
a 2nd round match

Cori Gauff

0-2
in
77 minites
The set scores were
4-6
3-6

Total games won: 7
Aces served: 5
Double Faults: 1

B. Access TASKS

Make use of the **2021 CAO Final Database.accdb** to do the tasks below. The information in the database is for a number of men's tennis tournaments played in the years 2019 and 2020. The database consists of four related tables.

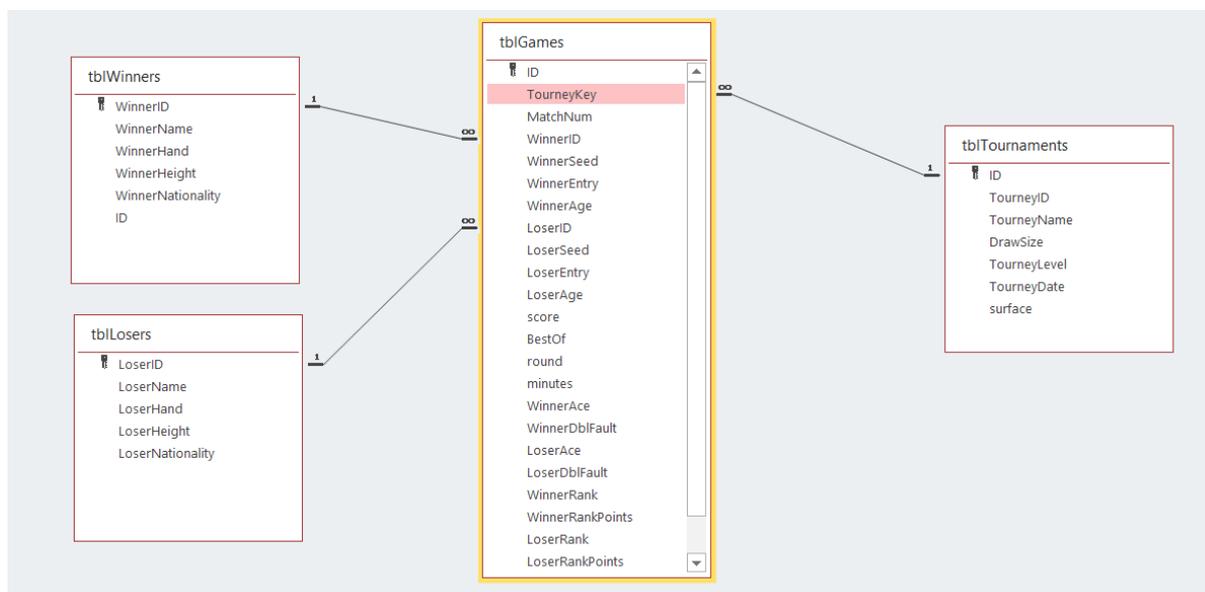


Figure 1: Table relationships

The tables are:

- tblTournaments – information unique to each tournament
- tblWinners – information about players who won matches
- tblLosers – information about players who lost matches
- tblGames – information about each match played in the tournaments in tblTournaments

Descriptions of the fields in each table can be found by viewing each table in Design View. The relationships between the tables are shown in Figure 1 above.

Be sure to save all queries, forms and reports. Use meaningful names.

As part of the drive to promote the sport of tennis, you have been asked to set up a database similar to the one you are going to work with now. Some of the following tasks will assist you with this learning experience. Note that you will not be required to set up a new database. All tasks should be completed using the **2021 CAO Final Database.accdb** database.

Task 1.1: Create Forms [12 marks]

Create **four** forms, one for each table in the database, that can be used to both edit existing records as well as add new records. Save each form with a meaningful name.

Take note of the following:

- AutoNumber fields should be displayed on the form but it should **not** be possible to edit these fields
- Database feature should be used to ensure that the data in new records is consistent with existing data. For example, the code for the player nationality should be a three letter uppercase code.
- The form used to add/edit games should make use of a split form. See Create a split form on the Microsoft support site if you are not sure how to do this. (<https://support.microsoft.com/en-us/office/create-a-split-form-e8eb0efb-2fa6-4315-9d4b-86e79a1fbc1e>) .

Task 1.2: Test Forms [4 marks]

Test your forms by adding the following information to the database:

Tournament	Winner	Loser
Tourney ID: 2021-03 Name: Cape Town Players: 8 Starting date: 8 March 2021 Surface: Hard	Raven Klaasen ID: 209877 DOB: 16 October 1982 Height: 1,71 m Right-handed South African Ranking: 210	Ruan Roelofse ID: 105434 DOB: 18 November 1989 Height: 1,88 m Right-handed South African Ranking: 370

Note that one of the players is already in the database but has incomplete information. The other player does not appear in the database.

Capture the results of the final match of the tournament

Winner: Raven Klaasen.

Capture **his age** as of 8 March 2021

Number of aces: 5

Number of double-faults: 2

Tournament seed: 1

Loser: Ruan Roelofse

Capture **his age** as of 8 March 2021

Number of aces: 1

Number of double faults: 10

Tournament seed: 8

Score: 6-1 6-0 (best of 3)

Match duration: 1 hour and 10 minutes

Note: Leave fields blank if no information is available, e.g ranking points gained.

Task 2: Reports

Create the following reports.

Report 1 [4 marks]

Create a report to display the details of the tournaments played in one year (either 2019 or 2020). You should be able to select the year when the report is displayed. Display the tournament date in full on your report, e.g. 8 August 2020.

Report 2 [4 marks]

Create a report to display the Quarter Finals, Semi Finals and Finals results for a tournament. You should be able to select the tournament and the tournament year.

For the results you must display **at least** the names of the winners and losers and the score. You may choose to display additional information.

Report 3 [5 marks]

Create a report to display all the results for a player in one year.

It should be possible to select the tournament year and the surname of the player. The report must show whether the chosen player won the match or lost the match.

Task 3: Fun facts [10 marks]

You need to find some interesting facts to include in your infographic/poster. Create at least five "Fun Fact" reports. These reports should show information like the winning player who scored the most aces in a season. Save each report as rptFunFact1, rptFunFact2, etc. The reports can be based on tables or queries which you create.

Task 4: Navigation Form [5 marks]

Create a navigation form that must open automatically when the database is opened.

The main navigation form should look like Figure 2.

Add the forms from Task 1 to the Forms navigation form, the reports from Task 2 to the Reports navigation form and the reports from Task 3 to the Fun Facts navigation form.

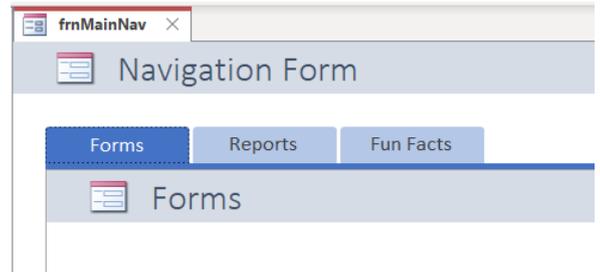
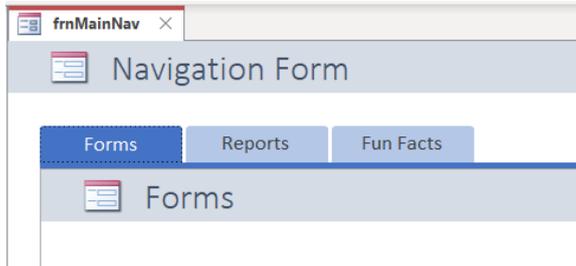


Figure 2: Navigation Form



C. INFOGRAPHIC

The aim of an infographic/poster is to tell a story with charts/graphs and information that make the information easy to understand.

You need to create an infographic/poster to promote the sport of tennis. You should display interesting items created from the data provided in the Access and Excel data files.

The criteria/requirements for your infographic/poster are:

- You can use Word, PowerPoint or Canva to create the infographic/poster. You will however get additional marks for using Canva.
- The infographic/poster must be A2 in size (i.e. 594 mm x 420 mm).
- Features must be balanced on the sheet.
- The whole of the A2 sheet must be used for the infographic/poster.
- Graphs/charts and other graphic features must be used promote the sport.
- Suitable text/labels with meaningful understandable information must be added to every graphic object.
- You may save your infographic in any presentable form e.g. PDF, JPG, PNG, etc.

On the infographic/poster

- Display a minimum of **seven** objects
- The objects on the infographic/poster need to display information from the Excel or Access data
- You may use your graphs and information you have already created in the Excel and Access questions.