***Analysis Report, SAT Criterion 3***

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Reference: *Category:Quality images of tennis - Wikimedia Commons*. (n.d.). Commons.wikimedia.org. Retrieved April 26, 2024, from https://commons.wikimedia.org/wiki/Category:Quality\_images\_of\_tennis#/media/File:Javier\_Mart%C3%AD\_-\_Masters\_de\_Madrid\_2015\_-\_05.jpg

**Research Question:** The Universal Tennis Rating or UTR for short is an algorithm used to assess the skills and talent of tennis players. Is UTR substantial for measuring the talent of tennis players vs other parameters that are better for measuring different skills?

Functional Requirements:

* reach a substantiated conclusion as to whether the research question was supported or refuted
* complex data is presented in a simplified and meaningful way
* include a mixture of data types including text, numbers, photos and both interactive and static graphics

Non Functional Requirements:

- all data used is current (less than 50 years old, 1973,2024)  
- presented text, diagrams and tables are accurate and relevant to the topic  
- the solution provides a complete picture of the research

- Data is easy to interpret and it is interpreted correctly

- Data is accurate and provides a clear answer to the research question

Data Requirments:

* Top tennis players utr specifically the top 10 from the past 50 years,
* A large amount of data including data from 1973 to 2024.
* Parameters, measuring groundstroke speed and consistency compared to other
* Most revered tennis players
* - tennis UTR
* player skills, specifically the top player’s strengths and weaknesses
* Statistics including most court coverage, fastest serve speed, ground strokes speed and consistency
* Include public opinion of the greatest players in their era

Constraints:

Economic:

* SAT solution must be completed by late August
* Time must be allocated to collect data
* No budget was assigned to the project so all data must be sourced from free sources
* Only includes data from 1973 -2024

Technical:

* All datasets must be processed using Microsoft Excel or Airtable
* Infographic is created on school laptop
* Haven't created an interactive infographic before, so a new skill/program must be learnt to complete this solution

Usability:

* information must be able to be easily interpreted by the user
* Users are able to navigate solutions and dynamic features without extra guidance

Legal:

* All secondary sources must be referenced correctly to avoid legal complications

Social:

* Secondary sources are sourced from trustworthy and free online sources

Scope:

The solution will answer the answer research question if UTR is the best parameter for tennis. The solution will incorporate functional requirements including reaching a substantiated conclusion as to whether the research question was supported or refuted, complex data is presented in a simplified and meaningful way, including a mixture of data types including text, numbers, photos and both interactive and static graphics. The solution will incorporate non-functional requirements such as all data used is current (less than 50 years old, 1973,2023), presented text, diagrams and tables being accurate and relevant to the topic, the solution providing a complete picture of the research, data being easy to interpret and it is interpreted correctly, information is concise and is presented with numerous colours in the solution, data is accurate and provides a clear answer to the research question. The data requirements of the solution are Top tennis players UTR specifically the top 10 from the past 50 years, a large amount of data including data from 1973 to 2023, parameters, measuring groundstroke speed and consistency compared to other, most revered tennis players, tennis UTR, player skills, specifically the top player’s strengths and weaknesses, statistics including most court coverage, fastest serve speed, ground strokes speed and consistency, include public opinion of the greatest players in their era.

The solution would also incorporate economic constraints: SAT solution must be completed by late August, time must be allocated to collect data, no budget was assigned to the project so all data must be sourced from free sources, only includes data from 1973 -2023. The solution would also incorporate technical constraints such as all datasets must be processed using Microsoft Excel or Airtable, an infographic is created on a school laptop, haven't created an interactive infographic before, so a new skill/program must be learnt to complete this solution. Finally, the solution will incorporate other constraints such as secondary sources are sourced from trustworthy and free online sources (social), all secondary sources must be referenced correctly to avoid legal complications (legal), information must be able to be easily interpreted by the user (Usability), users can navigate solutions and dynamic features without extra guidance (Usability).

However, the solution won’t incorporate any data before 1973 because it is irrelevant to the solution because of how long ago it was, therefore would not be considered current. The solution also will not include data from paying online services.

Functional Requirements:

* reach a substantiated conclusion as to whether the research question was supported or refuted

How would you show the data supports or refutes the conclusion with evidence?

* Statistics, graphs, data from 1973 -2024 supporting evidence
* Displayed in infographic with high quality and understandable graphs

Does the data support the initial claim?

* The statistics presented would either provide evidence of supporting the conclusion as

Universal tennis rating system as the best parameter of evidence or not

Complex data is presented in a simplified and meaningful way

* Is the data clear, concise and answers the research question comprehensively?

The data is clear and concise, with clear graphs comprehensively analysing the research question, resulting in a clear answer to the research question

How will we know if the complex data is clear, concise and conveys the answer to the research question effectively?

* Ask 5 people if the data is clear and easy to interpret
* Ask what point they believe is conveyed and how well they believe it is
* Finally, if all 5 people answer the data clearly and easy to interpret, and understand the comprehensive answer to the research question then this would be considered effective

include a mixture of data types including text, numbers, photos and both interactive and static graphics

Why does the data include a mix of data types?

* The information includes a mix of data types including graphs, headings, subheadings to comprehensively answer the research question, with a thorough understanding of the best measurement or parameter in tennis

How does the data include the mix of data types?

* The infographic includes a mix of data types through dynamic and static graphs, Headings, chart conventions, axes labels, subheadings
* The infographic would also display clear images of tennis players, the universal tennis rating system
* The data would also include text captions throughout the infographic

Non Functional Requirements:

- all data used is current (less than 51 years old, 1973,2024)

Why would you only use 51 years of data to support the conclusion?

* Data is current and accurate, as well as most tennis fans are familiar with the 70’s tennis players
* This is a large data set and therefore enough to provide evidence to support or refute the research question

- presented text, diagrams and tables are accurate and relevant to the topic

How are the text diagrams and tables accurate and relevant to the UTR topic?

* The diagrams display clear reliable graphs of the universal tennis rating and other parameters of measurement such as tennis service speed
* The data is taken from reliable secondary sources and is accurate

- the solution provides a complete picture of the research

How does the solution clearly convey the best measurement for tennis players?

* The solution provides clear graphs, both interactive and non-interactive of the parameters of tennis players, specifically comparisons of the universal tennis rating system compared to other measurements such as service speed
* The infographic would also be clear and concise and should be easy to interpret with clear statistics and evidence for the reader

- Data is easy to interpret and it is interpreted correctly

How will we know if data is easy to interpret and if its interpreted correctly?

* The Infographic will be shown to 10 people
* If all 10 people convey it is easy to understand and interpret the answer to the research
* correctly then the data is easy to understand

The SAT infographic includes a variety of colours

Are the colours used in the infographic aesthetic and formatted correctly?

* The colours of the infographic are visually pleasing and colour code specific types of data such as headings, subheadings, titles and text
* There is a wide variety of colours used including dark blue headings, red subheadings and black text
* Clear colour contrast and clear visibility

- Data is accurate and provides a clear answer to the research question

Does the infographic provide a clear answer to the research question?

* The infographic does provide a clear answer through the graphs, tables, and analyses of these clearly links back to the research question
* The statistics displayed are correct, accurate, and taken from reliable secondary sources and presented clearly in the infographic

Data Requirements:

* Top tennis players utr specifically the top 10 from the past 50 years

Where will this data come from and how will you know it’s reliable?

* This data will come from 5 secondary sources that contain the top 10 from the past 50 years
* The UTR site will be investigated to when it was created and when it was first used and therefore provide the top 10 from the year it was created
* If data is not reliable then research amount of titles each player received and specifically their strengths and weaknesses and compare this to the criteria of UTR to see where the players would fit
* A large amount of data including data from 1973 to 2024.
* How will you use this large amount of data?
* This data will be presented in the infographic through graphs and then clearly analysed in the paragraph below
* Why use this large amount of data?
* Provides comprehensive research to answer the research question, to bring a conclusion if the utr is the most substantial measurement for tennis players.
* Most revered tennis players tennis
* How will you find the most revered tennis players in the world?
* This will be measured through public opinion of the greatest tennis players in the world
* This will also be compared to the UTR system and if it reflects public opinion
* If some players don’t have a UTR then they will be compared to there strengths, weaknesses and victories
* player skills, specifically the top player’s strengths and weaknesses
* Where will you find the top players’ strengths and weaknesses?
* The top players of the past 50 years will be researched, then only a handful will be selected through the criteria below
* This will be found from 10 reliable secondary sources
* Which top players’ strengths and weaknesses will you analyse?
* The top player’s strengths and weaknesses will be analysed are players who have reached the number 1 tennis rank in the world, specifically analysing: Novak Djokovic, Rafael Nadal, Roger Federer, John McEnroe, Carlos Alcaraz, Nick Kyrios, Jannick Sinner, Andre Agassi
* Include public opinion of the greatest players in their era
* How will you find public opinions of the greatest players in their era?
* A survey would be conducted to tennis followers of who they thought was the greatest players of their era were
* News articles and other secondary sources would also be used to find out the greatest players in the public eye, specifically who gets the most attention and praise
* How will you know if these sources are reliable?
* The news articles will only be taken from known capable articles, such as the Age, Sports Illustrated
* The secondary sources will be assessed against the Harvard generator which automatically assesses if the sources are reliable

Parameters, measuring groundstroke speed and consistency compared to other measurements

How will we know if these parameters are a better form of measurement then UTR?

- this will be measured through their rank on the UTR system and if they are a better player the system believes or if they are a worse player

- therefore clearly displaying in their infographic if utr is the most substantial measurement or not

What parameters would we be using to compare?

The parameters used would be ground strokes, titles, consistency, ground strokes, volleys

-       Statistics including most court coverage, fastest serve speed, ground strokes speed and consistency

- How would this data link to the research question?

- The statistics will link specifically to other parameters of measurement, as there will be clear evidence supporting if it is the best form of measurement compared to UTR

- As the statistics will provide clear research for the fastest serving speed, most consistent and highest UTR holder