Spark Mind

Cognitive Assessment Report

Overview

This report presents a cognitive assessment based on a series of digital tasks and speech analysis. The assessment incorporates data from cognitive games (Stroop Colour, Memory Recall, Object-Purpose Matching) and natural language processing of a speech sample, focusing on metrics such as pause duration, filler word usage, lexical diversity, and sentiment. It aims to provide insights into various cognitive domains and identify potential areas of concern that may warrant further clinical evaluation.

Metrics Explanation

The following cognitive metrics were collected and analyzed:

*   **Stroop Colour:** (Score: 0) This test measures cognitive flexibility and selective attention by assessing the ability to name the colour of a word while ignoring the word's meaning (e.g., saying "blue" when the word "red" is printed in blue). A score of 0 suggests the task was either not completed or the implementation is pending.
*   **Memory Game:** (Score: 0) This game evaluates visual memory and recall abilities. Participants are typically shown a series of images or patterns and then asked to recall them in the correct sequence or identify them from a larger set. A score of 0 suggests the task was either not completed or the implementation is pending.
*   **Matching Object-Purpose:** (Score: 0) This task assesses semantic memory and the ability to associate objects with their intended functions. Participants are presented with objects and a set of possible purposes and must correctly match each object to its corresponding function. A score of 0 suggests the task was either not completed or the implementation is pending.
*   **Speech Metrics:** These metrics quantify various aspects of speech fluency, complexity, and articulation.
*   **Sentiment Analysis:** This analysis identifies the emotional tone expressed in the speech sample.

Speech Analysis

The speech sample was analyzed for several key characteristics:

*   **Total Time:** 18.8 seconds. This represents the duration of the speech sample.
*   **Total Pause Time:** 16.36 seconds. This is the cumulative duration of pauses within the speech sample.
*   **Pause Density:** 46.53%. Calculated as (Total Pause Time / Total Time) * 100. This indicates a high proportion of pauses relative to the total speech duration.
*   **Repeated Words:** 14.0. This counts the number of words repeated within the speech sample. Repetition can sometimes indicate difficulty in retrieving the correct word or formulating a thought.
*   **Filler Words:** 5.0. This counts the number of filler words (e.g., "um," "uh") used in the speech sample.
*   **Filler Frequency:** 9.09%. Calculated as (Filler Words / Total Words) * 100. This indicates the proportion

of filler words relative to the total word count.
*   **Unique Words:** 34.0. This is the number of distinct words used in the speech sample.
*   **Lexical Diversity:** 61.82%. Calculated as (Unique Words / Total Words) * 100. This measures the range of vocabulary used in the speech sample. A lower score might suggest reduced complexity in language production.
*   **Speech Fluency:** 56.17 words/sec. This metric is very high and likely an error in calculation or interpretation. It should be viewed with skepticism. More likely, it refers to characters/sec, instead of words/sec.

Interpretation of Speech Analysis:

The speech analysis reveals some potential areas of interest. The high pause density (46.53%) suggests potential difficulties in speech fluency or word retrieval. This could be indicative of cognitive effort or underlying language processing issues. The presence of filler words (9.09%) further supports this interpretation. The Lexical Diversity (61.82%) is within a normal range, suggesting relatively diverse vocabulary usage, but could be seen as lower than expected.

Sentiment Analysis

The sentiment analysis indicates the following:

*   **Label:** Neutral. The dominant sentiment expressed in the speech sample is neutral.
*   **Probabilities:** The probabilities associated with each sentiment category are:
    *   Negative: 0.041
    *   Neutral: 0.707
    *   Positive: 0.144
*   **Weighted Score:** 62.06. This represents an overall sentiment score, with higher values indicating more positive sentiment.

Interpretation of Sentiment Analysis:

The sentiment analysis suggests a predominantly neutral emotional tone. The relatively low probabilities of negative sentiment suggest the absence of strong negative emotions in the speech sample. The weighted score reinforces the neutral sentiment.

Integrated Interpretation

Integrating the cognitive game scores (all currently 0, indicating either non-completion or pending implementation) with the speech and sentiment analysis provides a limited but still informative picture. The speech analysis reveals potential fluency issues, evidenced by the high pause density and filler word usage. While the lexical diversity is within a reasonable range, the fluency issues warrant further investigation. The neutral sentiment suggests no overt emotional distress in the speech sample.

Recommendations

Based on the current assessment, the following recommendations are made:

1. **Complete Cognitive Game Assessment:** Ensure that the Stroop Colour, Memory Game, and Object-Purpose Matching tasks are properly administered and scored. These tasks will provide valuable quantitative data on specific cognitive domains.
2. **Speech and Language Evaluation:** Refer the individual for a comprehensive speech and language evaluation by a qualified speech-language pathologist. This evaluation can further investigate the observed fluency issues and identify any underlying language processing deficits.
3. **Neurological Consultation:** Consider a neurological consultation to rule out any underlying neurological conditions that may be contributing to the observed cognitive and speech patterns, especially given the fluency concerns indicated by high pause density and filler word usage.
4. **Monitor Cognitive Function:** Implement regular monitoring of cognitive function using standardized cognitive screening tools (e.g., MoCA, Mini-Cog) to track any changes over time.
5. **Consider Contextual Factors:** Investigate any contextual factors (e.g., stress, anxiety, fatigue) that may be influencing speech patterns.

It is a test done by AI; if the score is too high it is suggested to consult a doctor immediately, if not then also it is better to meet a doctor.