Bakat Age Points Interactive App — Technical Documentation

1. Overview
This tool is a lightweight Flask web application that allows users to calculate Bakat Points for swimmers based on their gender, age, event, and performance time.

It reads base times from an Excel sheet (Malaysia On Track Times Spreadsheet Workbook (1).xlsx) and computes a points score using the cubic ratio formula:
Points = 1000 * (Base Time / Swimmer Time)^3

The app is browser-based — users select parameters and enter their swimmer's time, and results (base time, swimmer time, and calculated points) are displayed instantly.

2. Folder and File Structure
Malaysia On Track/
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■■■ bakat_age_points-interactive_app/
■ ■■■ bakat_web_lookup_app.py <-- Flask backend
■ ■■■ templates/
■ ■ ■■■ index.html <-- front-end UI with embedded JavaScript
■ ■■■ static/ <-- (optional) for future CSS or JS
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■■■ Malaysia On Track Times Spreadsheet Workbook (1).xlsx <-- base times data

3. Data Source
File: Malaysia On Track Times Spreadsheet Workbook (1).xlsx
Sheet: "Bakat Base Times"
Columns (expected):
- Gender
- Age
- Event
- Base Time (numeric or formatted mm:ss.ff)

4. How the App Works
Step 1 — Startup
Run the app with:
flask run
or:
python bakat_web_lookup_app.py

Step 2 — The Index Route
Loads the Excel sheet, extracts unique dropdown values, and renders index.html.

Step 3 — The Frontend Interface
HTML page with dropdowns (Gender, Age, Event) and a time input.
When the user clicks "Compute Points", JS sends a POST request to /compute.

5. Backend Computation
@/compute route:
1. Receives JSON payload.
2. Filters Excel data for the matching Gender/Age/Event.
3. Converts times to seconds (handles mm:ss.ff or numeric input).
4. Computes points = 1000 * (base/swimmer)^3.

5. Returns JSON: {base_time, swimmer_time, points}.

6. Frontend Output
JavaScript formats and displays results:
Base time: 2:19.58
Swimmer time: 2:24.90
Points: 894

7. Running Instructions
1. Install requirements:
pip install flask pandas openpyxl
2. Run Flask app:
flask run
3. Open: http://127.0.0.1:5000/

8. Functions Summary
- load_base_table(): loads Excel into DataFrame.
- parse_time_to_seconds(): converts mm:ss.ff → float seconds.
- Flask routes:
"/" → loads form
"/compute" → calculates points

9. Error Handling
Returns error messages for invalid or missing data.

10. Future Expansion
- Graph plotting (Plotly/Matplotlib).
- Batch uploads.
- Data export.
- Authentication.

11. Dependencies
Flask, pandas, openpyxl, math

12. Data Flow
Frontend → Backend: User input → JSON POST
Backend → Frontend: JSON with results
Frontend formats and displays times and points.

13. Example
Input: F, 14, 200 IM, 2:24.90
Base = 2:19.58 (139.58s)
Swimmer = 2:24.90 (144.9s)
Points = 894

14. Troubleshooting
No match → check Excel data.
Invalid time → check format.
Undefined → variable mismatch in JS.

15. Summary
A simple, maintainable web tool for calculating Bakat Points.