

Race Split Analysis Tool

A powerful web application for analyzing race results and detecting pace inconsistencies in running events. This tool helps race directors and timing companies identify potential course-cutting or timing anomalies by analyzing split times and pace patterns. Features Data Import

- **RunSignup API Integration:** Connect directly to RunSignup to fetch race results
 - Search races by year
 - Select specific events within a race
 - Automatic pagination to fetch all results
 - Real-time data refresh during races
- **CSV Upload:** Import race results from CSV files with flexible column mapping

Split Analysis

- **Pace Consistency Analysis:** Automatically detect unusual pace patterns
 - Configurable pace change threshold
 - Smart detection of expected slowdown vs suspicious patterns
 - Identifies outlier splits that don't fit the trend
- **In-Progress Monitoring:** Track runners during live races
 - Handles participants without finish times
 - Distinguishes between missed splits and splits not yet reached
 - Real-time refresh capability

Participant Management

- **Watch/Dismiss Flags:** Mark participants for follow-up or exclusion
 - Watch: Flag participants for closer monitoring
 - Dismiss: Mark participants as reviewed/cleared
 - Flags persist across data refreshes
 - Exclusive filter options (show only watched, only dismissed, or unflagged)
- **Priority-Based Flagging:** Runners with suspicious patterns are automatically flagged
 - Always shows watched/dismissed participants regardless of pace threshold
 - Smart filtering based on pace consistency

Split Configuration

- **Flexible Split Setup:** Configure race splits with custom distances
 - Auto-detect split names from data
 - Support for both kilometers and miles
 - Enable/disable specific splits from analysis

- Reorder splits as needed
- **Race Distance Configuration:** Set total race distance for accurate pace calculations

Analysis Features

- **Pace Deviation Analysis:** View detailed pace information for each runner
 - Split times and paces
 - Pace changes between splits
 - Overall pace consistency metrics
 - Visual indicators for suspicious patterns
- **Trend Detection:** Identifies whether runners are consistently slowing down (expected) or have outlier splits (suspicious)

Usage Tracking

- Automatically tracks race and event analysis in Neon database
- Helps understand tool adoption and usage patterns

Technology Stack

- **Framework:** Next.js 15 (App Router)
- **Language:** TypeScript
- **Styling:** Tailwind CSS v4
- **UI Components:** shadcn/ui
- **Database:** Neon (PostgreSQL)
- **API Integration:** RunSignup API
- **Deployment:** Vercel

Getting StartedPrerequisites

- Node.js 18+ installed
- A Vercel account (for deployment)
- Neon database (for usage tracking)
- RunSignup API access (optional, for direct integration)

How to Use

Importing DataOption 1: RunSignup API

1. Navigate to the "Data Source" tab
2. Select "RunSignup API Integration"
3. Enter the race ID from RunSignup

4. Select the year
5. Choose the specific event
6. Configure race distance and splits
7. Click "Import Results"

Option 2: CSV Upload

1. Navigate to the "Data Source" tab
2. Select "CSV Upload"
3. Upload your CSV file
4. Map columns to required fields (Name, Finish Time, etc.)
5. Configure race distance and splits
6. Click "Import Results"

Analyzing Results

1. After importing, the tool automatically analyzes pace consistency
2. View flagged participants in the "Flagged Results" tab
3. Adjust the "Split Pace Change Threshold" to fine-tune sensitivity
4. Click on any participant to see detailed split analysis

Managing Participants

- **Watch:** Click the eye icon to mark participants for monitoring
- **Dismiss:** Click the X icon to mark participants as reviewed
- **Filter:** Use the filter dropdown to show only watched, dismissed, or unflagged participants
- **Reset:** Clear all watch/dismiss flags with the reset button

Refreshing Data

For live race monitoring:

1. Click "Refresh Data" to fetch updated results
2. The tool maintains your configuration and participant flags
3. New data is automatically analyzed with preserved settings

Starting a New Analysis

Click "New Analysis" to clear all data and start fresh with a different race. Privacy & Data Handling

The tool automatically filters out sensitive information from race results:

- Email addresses
- Phone numbers
- Addresses
- Other personally identifiable information

Support

For issues or questions, please contact the development team or open an issue in the repository.