

## Codebook for MultiLA prepared tracking data

The prepared data will be stored under

`data/prepared/<application_session_id>_tracking_data.rds`

in the TrackingDataScripts project. It contains a dataframe of tracked events with the following variables:

- **user\_app\_sess\_code**: user application session code (session code for an individual anonymous or registered user interacting with a specific application session) -- factor
- **user\_app\_sess\_user\_id**: user ID for registered users; no further data on individual users is provided in this dataset -- integer for registered users or NA for anonymous users
- **track\_sess\_id**: tracking session ID (ID indicating a continuous interaction of a user with the application session on a single device) -- integer
- **track\_sess\_start**: start of the tracking session (first visit of a user on this device for this application session) -- POSIXct time
- **track\_sess\_end**: end of the tracking session (user closes the browser window of logs out) -- POSIXct time
- **user\_agent**: "user agent" string from the browser -- character string
- **client\_ip**: client IP address (if it could be determined)
- **form\_factor**: factor; "desktop", "tablet" or "phone"
- **initial\_win\_width**: initial client browser window width; numeric
- **initial\_win\_height**: initial client browser window height; numeric
- **initial\_contentview\_width**: initial content view width; numeric
- **initial\_contentview\_height**: initial content view height; numeric
- **initial\_contentscroll\_width**: initial content scroll area width; numeric
- **initial\_contentscroll\_height**: initial content scroll area height; numeric
- **event\_time**: time the event took place; POSIXct time with millisecond accuracy
- **type**: event type; factor
- **chapter\_index**: content chapter index; integer
- **chapter\_id**: content chapter ID label; factor
- **ex\_label**: question or exercise label; factor
- **ex\_id**: question or exercise ID; character string
- **ex\_event**: learnr code exercise event type; character string ("result" or

- "submitted")
- **ex\_output**: learnr code exercise R output; character string
  - **ex\_correct**: learnr code exercise result assessment -- correct or incorrect; logical
  - **xpath**: XPath to HTML element related to the event (if any); character string
  - **css**: CSS selector to HTML element related to the event (if any); character string
  - **value**: value related to the event; for input events this is the value that was entered; for code exercises this is the code the user submitted; for question exercises, this is the submitted answer (multiple answers are formatted as [answer1, answer2, ... answern]); character string
  - **coord1**: X coordinate for spatial events like mouse moves or clicks; numeric
  - **coord2**: Y coordinate for spatial events like mouse moves or clicks; numeric
  - **win\_width**: current client browser window width at the time when the event occurred; numeric
  - **win\_height**: current client browser window height at the time when the event occurred; numeric
  - **contentview\_width**: current content view width at the time when the event occurred; numeric
  - **contentview\_height**: current content view height at the time when the event occurred; numeric
  - **win\_scroll\_x**: current client browser window scroll X position; numeric
  - **win\_scroll\_y**: current client browser window scroll Y position; numeric
  - **content\_scroll\_x**: current content area scroll X position; numeric
  - **content\_scroll\_y**: current content area scroll Y position; numeric