




















## fastar-jira










Project: behametrics-learn

Sorted by: Sprint ascending, then Priority descending, then Updated descending










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T	Key	Status	Sprint	Created	Updated	Summary	Acceptance criteria	Description	Assignee
	BEL-18	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 1	08/Oct/18	15/Oct/18	BEL-17 / <a href="#">JIRA methodology</a>		Create JIRA methodology.	<a href="#">Kamil Janeče</a>
	BEL-17	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 1	08/Oct/18	22/Oct/18	<a href="#">Methodologies</a>		Create all required methodologies.	<a href="#">Michal Manak</a>
	BEL-50	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 1	10/Oct/18	21/Oct/18	BEL-23 / <a href="#">Tests and DI</a>		Find correct way to test python Flask applications. pytest some dependency injection or correct way to mock modules so we can easily make unit tests.	<a href="#">Kamil Janeče</a>
	BEL-23	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 1	09/Oct/18	23/Oct/18	<a href="#">Store Logged Data</a>	test of saving data (example input - json) and display correct data on retrieval	As a researcher I want to store logged data from the web so that I can later analyze the data at any given time.  <ul style="list-style-type: none"> <li>display stored data</li> <li>technologies</li> </ul>	<a href="#">Kamil E</a>
	BEL-54	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 1	21/Oct/18	23/Oct/18	BEL-23 / <a href="#">Deploy develop to VM</a>	current develop branch deployed to VM	setup deployment /run docker container/ setup nginx	<a href="#">Kamil Janeče</a>
	BEL-47	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 1	09/Oct/18	22/Oct/18	BEL-17 / <a href="#">Product deployment methodology</a>			<a href="#">Michal Manak</a>
	BEL-21	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 1	08/Oct/18	22/Oct/18	BEL-17 / <a href="#">Methodology for code writing</a>	Defined methodologies for code writing approved by all team members	Create methodologies for code writing	<a href="#">Michal Manak</a>
	BEL-39	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 1	09/Oct/18	22/Oct/18	BEL-17 / <a href="#">Methodology for code review</a>			<a href="#">Matúš Kalafut</a>
	BEL-43	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 1	09/Oct/18	22/Oct/18	BEL-23 / <a href="#">Integrate server with database</a>		Save data to database.	<a href="#">Michal Balážov</a>
	BEL-22	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 1	08/Oct/18	22/Oct/18	BEL-17 / <a href="#">Methodology for version control</a>	Defined methodologies for version control approved by all team members	Create methodologies for version control	<a href="#">Matúš Kalafut</a>








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	BEL-42	<span style="background-color: #d4edda; border: 1px solid #c3e6cb; border-radius: 3px; padding: 2px;">DONE</span>	BEL Sprint 1	09/Oct/18	22/Oct/18	BEL-23 / Backend server		Select backend technology (language, framework) for server. Expose endpoints for: 1. saving data 2. retrieving data  Setup repository + CI (dockerize) + auto deploy to our VM	Michaľ Balážo
	BEL-38	<span style="background-color: #d4edda; border: 1px solid #c3e6cb; border-radius: 3px; padding: 2px;">DONE</span>	BEL Sprint 1	09/Oct/18	22/Oct/18	Big picture		<a href="https://team04-18.studenti.fiit.stuba.sk/wiki/display/BEH/Big+picture">https://team04-18.studenti.fiit.stuba.sk/wiki/display/BEH/Big+picture</a>	Michal Manak
	BEL-55	<span style="background-color: #d4edda; border: 1px solid #c3e6cb; border-radius: 3px; padding: 2px;">DONE</span>	BEL Sprint 1	22/Oct/18	22/Oct/18	BEL-38 / Define goals of our project		<ul style="list-style-type: none"> <li>• goals for this semester <ul style="list-style-type: none"> <li>◦ what needs to be done in the end of winter semester (approximately 17.12.)</li> </ul> </li> <li>• visions for the next semester</li> </ul>	Michal Manak
	BEL-46	<span style="background-color: #d4edda; border: 1px solid #c3e6cb; border-radius: 3px; padding: 2px;">DONE</span>	BEL Sprint 1	09/Oct/18	22/Oct/18	BEL-38 / High-level product architecture			Michal Manak
	BEL-49	<span style="background-color: #d4edda; border: 1px solid #c3e6cb; border-radius: 3px; padding: 2px;">DONE</span>	BEL Sprint 1	09/Oct/18	21/Oct/18	BEL-17 / Definition of ready			Kamil Janečo
	BEL-48	<span style="background-color: #d4edda; border: 1px solid #c3e6cb; border-radius: 3px; padding: 2px;">DONE</span>	BEL Sprint 1	09/Oct/18	21/Oct/18	BEL-17 / Definition of done			Michal Manak
	BEL-40	<span style="background-color: #d4edda; border: 1px solid #c3e6cb; border-radius: 3px; padding: 2px;">DONE</span>	BEL Sprint 1	09/Oct/18	21/Oct/18	BEL-17 / Methodologies for documentation		<a href="https://team04-18.studenti.fiit.stuba.sk/wiki/display/BEH/Documentation">https://team04-18.studenti.fiit.stuba.sk/wiki/display/BEH/Documentation</a>	Kamil Janečo
	BEL-7	<span style="background-color: #d4edda; border: 1px solid #c3e6cb; border-radius: 3px; padding: 2px;">DONE</span>	BEL Sprint 1	06/Oct/18	16/Oct/18	Log Mouse Raw Data	List of log events in console	<p>As a researcher I want to log raw data from computer mice on the web so that I can use the data for further analysis.</p> <p>Data to log:</p> <ul style="list-style-type: none"> <li>• <b>log name of the event + generic data (x, y, timestamp)</b></li> <li>• coordinates (x, y)</li> <li>• timestamp - as precise as possible</li> <li>• event type - move, click (left, middle, right, ...), scroll, ... <ul style="list-style-type: none"> <li>◦ in case of clicks, distinguish mouse-down and mouse-up</li> </ul> </li> </ul> <p>Additional comments:</p> <ul style="list-style-type: none"> <li>• browser and version compatibility - not really sure, as many as possible, I guess <ul style="list-style-type: none"> <li>◦ chrome- latest</li> <li>◦ firefox- latest</li> </ul> </li> <li>• performance concerns - not important at the moment</li> </ul> <p>References:</p> <ul style="list-style-type: none"> <li>• <a href="https://developer.mozilla.org/en-US/docs/Web/API/MouseEvent/buttons">https://developer.mozilla.org/en-US/docs/Web/API/MouseEvent/buttons</a></li> <li>• <a href="https://developer.mozilla.org/en-US/docs/Web/Events/wheel">https://developer.mozilla.org/en-US/docs/Web/Events/wheel</a></li> </ul>	Kamil E
	BEL-44	<span style="background-color: #d4edda; border: 1px solid #c3e6cb; border-radius: 3px; padding: 2px;">DONE</span>	BEL Sprint 1	09/Oct/18	14/Oct/18	BEL-7 / Logging functionality		Method/observable which will return required data: timestamp, x, y, eventName	Kamil Janečo





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	BEL-45	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 1	09/Oct/18	14/Oct/18	BEL-7 / <a href="#">Verify logging</a>		Verify logging component in firefox: latest chrome: latest  ▪ > write all output to console	Ján Vnec
	BEL-41	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 1	09/Oct/18	12/Oct/18	BEL-23 / <a href="#">Configure database system</a>		Setup MongoDB on our VM. (docker container, secured instance, start on startup)	Kamil Janeček
	BEL-68	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 2	29/Oct/18	05/Nov/18	BEL-25 / <a href="#">Create repository for ML module</a>		Create repository with appropriate name in <a href="https://gitlab.com/tp-fastar">https://gitlab.com/tp-fastar</a>	Matej Končál
	BEL-67	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 2	27/Oct/18	27/Oct/18	BEL-56 / <a href="#">Enable CORS and bulk insert on server-side</a>		Configure the server to send an Access-Control-Allow-Methods response header that includes Content-Type	Matúš Kalafut
	BEL-69	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 2	29/Oct/18	05/Nov/18	BEL-25 / <a href="#">Identify user sessions</a>		For each event identify session in which event was logged. <a href="#">Matej Končál</a> suggestion 2 events from same user belong to same user session, if their time difference is less than 30min. But make it general, so i want to change 1 variable to modify time threshold Use <a href="#">raw_logs.csv</a> from <a href="http://www2.fiit.stuba.sk/~kratky/biometrics/data/web_ident_mouse/index.html">http://www2.fiit.stuba.sk/~kratky/biometrics/data/web_ident_mouse/index.html</a>	Michal Balážov
	BEL-70	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 2	29/Oct/18	05/Nov/18	BEL-25 / <a href="#">Compute velocity and acceleration</a>		For each mouse movement compute horizontal/vertical velocity and acceleration. <a href="#">Matej Končál</a> suggest to write general function which accepts function in parameter and compute output (e. g. velocity) by passed function Use <a href="#">raw_logs.csv</a> from <a href="http://www2.fiit.stuba.sk/~kratky/biometrics/data/web_ident_mouse/index.html">http://www2.fiit.stuba.sk/~kratky/biometrics/data/web_ident_mouse/index.html</a> . Select data from one user and count on them. We will do it per user session later.	Matej Končál
	BEL-71	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 2	29/Oct/18	05/Nov/18	BEL-26 / <a href="#">Split events to segments</a>		For each event identify segment to which event belongs to. Split can be determined according to time interval, silence time, ... <a href="#">Matej Končál</a> suggest to write general function which accepts function in parameter and identify split threshold by passed function Use <a href="#">raw_logs.csv</a> from <a href="http://www2.fiit.stuba.sk/~kratky/biometrics/data/web_ident_mouse/index.html">http://www2.fiit.stuba.sk/~kratky/biometrics/data/web_ident_mouse/index.html</a> . Select data from one user and count on them. We will do it per user session later.	Matej Končál
	BEL-56	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 2	23/Oct/18	06/Nov/18	<a href="#">Integrate logger with server</a>	User is able to get data from session, identified by session id (shown on logger page)	As a researcher I want to store logged data per session, so that I can see the data per session.	Kamil Janeček
	BEL-52	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 2	16/Oct/18	06/Nov/18	<a href="#">Log Mouse Clicks - Advanced</a>	On scroll event, data should contain 2 properties for vertical and horizontal scroll amount delta. Mouse button property should contain all mouse click combinations.	<ul style="list-style-type: none"> <li>• Logger should log also combinations of mouse clicks (all 5 mouse buttons)</li> <li>• Log scroll amount (horizontal, vertical)</li> </ul>	Ján Vnec

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	BEL-8	<span>DONE</span>	BEL Sprint 2	06/Oct/18	06/Nov/18	<a href="#">Log Custom Events</a>	Logger should contain textfield and confirm button. After inserting custom event into textfield and button click the custom event is logged with all other attributes.	As a researcher I want to specify custom events to be logged so that I can enhance pre-processing of raw data. Events could be defined in the code. Examples: clicking or moving through a specific object The number of fields to be logged is variable. At the minimum, the name of the event should be logged (could be anything). Logging custom events on the web should be possible on any device.	Kamil E
	BEL-25	<span>DONE</span>	BEL Sprint 2	09/Oct/18	06/Nov/18	<a href="#">Compute speed related columns from raw data</a>	Computed columns are visible in table with raw data.	Compute additional columns (see picture in attachments) for data	Kamil E
	BEL-26	<span>DONE</span>	BEL Sprint 2	09/Oct/18	06/Nov/18	<a href="#">Split raw data to time interval and silence segments</a>	User is able to get data by session with segments criteria (time intervals - silence, combination)	Data should be tagged by segment according to its time interval, silence time, or combination of both. Criteria should be maximally variable.	Kamil E
	BEL-75	<span>DONE</span>	BEL Sprint 2	02/Nov/18	06/Nov/18	<a href="#">Prepare jupyter notebook for demo</a>		Create jupyter notebook 1. load <a href="#">raw_logs.csv</a> 2. demonstrate usage of functions implemented in <a href="#">BEL-25</a> and <a href="#">BEL-26</a>	Michal Manak
	BEL-77	<span>DONE</span>	BEL Sprint 2	05/Nov/18	05/Nov/18	<a href="#">BEL-8 / Interface for custom events</a>		Allow user to programatically log custom events: these events will have structure defined in issue <a href="#">BEL-74</a>	Michal Manak
	BEL-63	<span>DONE</span>	BEL Sprint 2	23/Oct/18	05/Nov/18	<a href="#">BEL-52 / Advanced mouse clicks implementation</a>			Kamil Janeče
	BEL-73	<span>DONE</span>	BEL Sprint 2	02/Nov/18	05/Nov/18	<a href="#">BEL-56 / Use session ID in logged data</a>			Kamil Janeče
	BEL-65	<span>DONE</span>	BEL Sprint 2	25/Oct/18	05/Nov/18	<a href="#">BEL-56 / Serve flask with gunicorn in production</a>		Configure gunicorn to run flask app, when deployed to production/develop	Kamil Janeče
	BEL-76	<span>DONE</span>	BEL Sprint 2	03/Nov/18	05/Nov/18	<a href="#">BEL-56 / Validate clients header</a>		<a href="http://flask.pocoo.org/docs/1.0/api/#flask.Flask.before_request">http://flask.pocoo.org/docs/1.0/api/#flask.Flask.before_request</a> validate custom header before every request <pre>headers: {   'Content-Type': 'application/json',   'Logger': 'fastar/web-v0.1', }, You, a minute ago • Uncommitt</pre>	Matúš Kalafut
	BEL-66	<span>DONE</span>	BEL Sprint 2	27/Oct/18	04/Nov/18	<a href="#">BEL-56 / Posting logged data to server</a>			Kamil Janeče
	BEL-58	<span>DONE</span>	BEL Sprint 2	23/Oct/18	04/Nov/18	<a href="#">BEL-56 / Filter session data on server</a>			Matej Končál










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	BEL-57	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 2	23/Oct/18	03/Nov/18	BEL-56 / <a href="#">UID generation</a>			Matej Končál
	BEL-60	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 2	23/Oct/18	03/Nov/18	BEL-56 / <a href="#">Model events in database</a>		ideas: document per session event = meta + payload	Unassigned
	BEL-59	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 2	23/Oct/18	03/Nov/18	BEL-56 / <a href="#">Save session id in events</a>			Unassigned
	BEL-64	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 2	25/Oct/18	02/Nov/18	BEL-56 / <a href="#">Server CI/CD refactor</a>		<ul style="list-style-type: none"> <li>fix docker image creation job - cache from latest-dev image when branch develop</li> <li>replace '_' with '-' in docker container name</li> </ul>	Kamil Janeče
	BEL-74	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 2	02/Nov/18	02/Nov/18	BEL-8 / <a href="#">Define data structure</a>	Specified data structure	Define data structure for custom events (all events)	Kamil Janeče
	BEL-82	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	06/Nov/18	17/Nov/18	BEL-79 / <a href="#">Compute acceleration and jerk for each axis</a>		For each mouse movement compute horizontal/vertical velocity and acceleration. <a href="#">Matej Končál</a> suggest to write general function which accepts function in parameter and compute output (e. g. velocity) by passed function Use <a href="#">raw_logs.csv</a> from <a href="http://www2.fiit.stuba.sk/~kratky/biometrics/data/web_ident_mouse/index.html">http://www2.fiit.stuba.sk/~kratky/biometrics/data/web_ident_mouse/index.html</a> . Select data from one user and count on them. We will do it per user session later.	Michal Manak
	BEL-101	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	12/Nov/18	03/Dec/18	BEL-29 / <a href="#">Create pipeline for user authentication evaluation</a>		Create pipeline which trains classifier for each user in dataset and return metrics for each user. Subsequently compute statistics from this metrics, e.g. average values, ...	Michal Manak
<input checked="" type="checkbox"/>	BEL-83	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	06/Nov/18	27/Nov/18	<a href="#">Survey of logging possibilities from mobile devices</a>		Analyse possibilities of logging data from mobile devices sensors.  Output should be stories in backlog with adequate description. document sensors not working ..	Ján Vnec
	BEL-99	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	12/Nov/18	20/Nov/18	BEL-29 / <a href="#">Write estimator which wraps classifier</a>		Write estimator which accepts Classifier in params. If I call fit on this transformer, it will train this classifier. Output of predict function will return actual class labels and predicted class labels for each sample.  no data balancing by default (should be optional)	Matej Končál
	BEL-86	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	07/Nov/18	20/Nov/18	BEL-84 / <a href="#">Expose endpoint for data retrieval</a>		Should accept sessionId to get dataset for selected session	Unassigned

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	BEL-27	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	09/Oct/18	20/Nov/18	<a href="#">Extract features from segments</a>	Dataframe containing user_id, session_id, segment and all new columns.	<ul style="list-style-type: none"> <li>For each segment <ul style="list-style-type: none"> <li>average</li> <li>min</li> <li>max</li> <li>median</li> <li>lower quartile</li> <li>upper quartile</li> <li>Inter quartile range</li> </ul> </li> <li>Calculate those features also for parts (beginning, middle, end) of segment (Defined by count of points - events, custom chosing)</li> <li>Calculate duration, distance, start and end x;y, trajectory length</li> </ul>	Kamil E
	BEL-78	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	05/Nov/18	20/Nov/18	<a href="#">Adjust data to required format</a>	Dataset in required form (columns - time, x, y, id_user)	As a researcher I want to integrate external csv files to required format Suggestion: create function that will transform given data to DataFrame with specified labels (time, x, y .. as we require)	Kamil E
	BEL-84	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	06/Nov/18	20/Nov/18	<a href="#">Generate dataset from our data</a>	Downloadable csv from our server	As a researcher, I want to export data from server to csv file, so that I can use it for further processing.	Kamil E
	BEL-29	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	09/Oct/18	20/Nov/18	<a href="#">User authentication</a>	FP, FN rate for each user  mean, std and median for those metrics per user	Usually, for $n$ users from an experiment, user authentication is computed as follows: <ul style="list-style-type: none"> <li>For each user: <ul style="list-style-type: none"> <li>make user the owner (positive class), the others impostors (negative class)</li> <li>train model (binary classifier, anomaly detector)</li> <li>test model</li> </ul> </li> <li>report metrics from all users <ul style="list-style-type: none"> <li>metrics for each user individually</li> <li>statistics - average, std.</li> </ul> </li> </ul> Metrics <ul style="list-style-type: none"> <li>"typical" metrics for binary classifiers: accuracy, precision, recall, F1-score</li> <li>domain-specific: FAR, FRR, EER</li> <li>User should be able to choose the reported metrics</li> </ul>	Kamil E
	BEL-79	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	06/Nov/18	20/Nov/18	<a href="#">Compute speed related columns from raw data</a>	Computed columns are visible in table with raw data.	Compute additional columns (see picture in attachments) for data	Kamil E
	BEL-72	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	02/Nov/18	20/Nov/18	<a href="#">Change demo implementation</a>	builed lib removed from repo master version of demo deployed on gitlab-pages	Please stop building library into repository. Artifacts are available from CI. <a href="https://docs.gitlab.com/ee/user/project/pipelines/job_artifacts.html#downloading-the-latest-artifacts">https://docs.gitlab.com/ee/user/project/pipelines/job_artifacts.html#downloading-the-latest-artifacts</a> Please state this information in readme.	Ján Vn
	BEL-100	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	12/Nov/18	20/Nov/18	BEL-29 / <a href="#">Add function for metrics calculation</a>		Write function which computes metrics. This function accepts actual class labels and predicted class labels as input.	Matej Končál
	BEL-112	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	19/Nov/18	20/Nov/18	BEL-29 / <a href="#">Add functions to compute domain specific metrics</a>		Calculate metrics FAR, FRR, EER	Michal Manak
	BEL-98	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	12/Nov/18	20/Nov/18	BEL-29 / <a href="#">Write transformer which adds label column for user</a>		Write transformer which could be used in <a href="#">Pipeline</a> and accepts <code>user_id</code> as parameter. Output of this transformer will contain label column, which represents if row belongs (1)/not belongs (0) to user with <code>user_id</code> passed in parameter.	Tomáš Jendrej











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	BEL-97	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	12/Nov/18	20/Nov/18	BEL-78 / <a href="#">Create function for data column name preprocess</a>		Function should transform data column name to name that we require for ml module.	Michal Manak
	BEL-93	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	10/Nov/18	20/Nov/18	BEL-27 / <a href="#">Compute features for each segment</a>		<p>Write function to compute features for each segment</p> <ul style="list-style-type: none"> <li>• average</li> <li>• min</li> <li>• max</li> <li>• median</li> <li>• lower quartile</li> <li>• upper quartile</li> <li>• inter quartile range</li> <li>• duration</li> <li>• start x</li> <li>• start y</li> <li>• end x</li> <li>• end y</li> </ul> <p><a href="#">Matej Končál</a> suggest to use <a href="#">pandas.groupby.agg</a>. Make groupby general, so i can change groupby column name and compute features e.g. for segment parts</p>	Matej Končál
	BEL-92	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	10/Nov/18	20/Nov/18	BEL-27 / <a href="#">Split segments to parts</a>		<p>Write function to split each segments to 3 parts (maybe more, if there is easy solution):</p> <ul style="list-style-type: none"> <li>• beginning - e.g. identifier &lt;seg_num&gt;_b</li> <li>• middle - e.g. identifier &lt;seg_num&gt;_m</li> <li>• end - e.g. identifier &lt;seg_num&gt;_e</li> </ul> <p>Make function general, so it must be easy to change split criterion, e.g. split criterion will be passed to function via parameter</p>	Matúš Kalafut
	BEL-94	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	10/Nov/18	20/Nov/18	BEL-27 / <a href="#">Compute movement length for segment</a>		<p>Write functions which accepts data from one segment/part of segment and compute:</p> <ul style="list-style-type: none"> <li>• trajectory length</li> <li>• air distance from start to end</li> </ul>	Tomáš Jendrej
	BEL-88	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	07/Nov/18	19/Nov/18	BEL-84 / <a href="#">Implement data conversion</a>		Implement data conversion from structure stored in database into CSV format.	Matúš Kalafut
	BEL-91	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	07/Nov/18	17/Nov/18	BEL-84 / <a href="#">Find all possible columns</a>	For given mongo query find all possible keys in json.	<p>Currently we are storing this:</p> <pre style="border: 1px solid gray; padding: 10px;">{   "sessionId": 24,   "timeStamp": 2580.599999986589,   "eventType": "CUSTOM",   "payload": {dynamic},   "sessionStartsAt": 1541118820776 }</pre> <p>That dynamic part is problematic for us. We need to know all of those possible columns before we can start doing any processing.</p>	Kamil Janeč
	BEL-87	<span style="border: 1px solid green; padding: 2px;">DONE</span>	BEL Sprint 3	07/Nov/18	07/Nov/18	BEL-84 / <a href="#">Finalize data format</a>		<p>get correct column names for CSV export</p> <p>relates to <a href="#">BEL-78</a></p>	Matej Končál












T	Key	Status	Sprint	Created	Updated	Summary	Acceptance criteria	Description	Assignee
	BEL-113	IN PROGRESS	BEL Sprint 4, BEL Sprint 5	20/Nov/18	04/Dec/18	Log raw data from mobile devices	Show raw data in console	<p>As a researcher I want to log raw data from mobile devices on the web so that I can use the data for further analysis.</p> <p>Mobile devices = for now, smartphones and tablets</p> <p>Raw data to log:</p> <ul style="list-style-type: none"> <li>touch screen <ul style="list-style-type: none"> <li>touch coordinates (x, y)</li> <li>timestamp (as precise as possible)</li> <li>touch pressure (only one of these fields returns valid values, depending on the device)</li> <li>touch events - start, end, move</li> <li>touch identifier</li> </ul> </li> <li>sensors (accelerometer, gyroscope) <ul style="list-style-type: none"> <li>values (acceleration on x, y, z in m/s<sup>2</sup>, orientation on x, y, z in degrees)</li> <li>timestamp</li> </ul> </li> </ul> <p>Need to solve infinite data stream from sensors !</p> <p>Some of the sensors (or fields therein) may not be supported on all browsers/devices, this may help:</p> <ul style="list-style-type: none"> <li><a href="https://github.com/Modernizr/Modernizr">https://github.com/Modernizr/Modernizr</a></li> </ul> <p>References:</p> <ul style="list-style-type: none"> <li><a href="https://developer.mozilla.org/en-US/docs/Web/API/Touch_events/Using_Touch_Events">https://developer.mozilla.org/en-US/docs/Web/API/Touch_events/Using_Touch_Events</a></li> </ul>	Ján Vn
	BEL-30	TO DO	BEL Sprint 4, BEL Sprint 5	09/Oct/18	04/Dec/18	Scalability of user model w.r.t. number of users	DataFrame containing metrics for each provided setting	<p>As a researcher I want to be able to assess the metrics for classification results w.r.t. the number of users in the model so that I can determine the scalability of the behavioral biometric user model.</p> <p>Example:</p> <p>Suppose I have data from 1000 users, I want to compute the accuracy of user identification for 5, 10, 20, 50, ... up to 1000 users. If the identification accuracy drops below e.g. 90% at 100 users, I can proclaim that my method is not usable for identification on the web for UX purposes for that many users.</p>	Michal Manak
	BEL-123	TO DO	BEL Sprint 4, BEL Sprint 5	03/Dec/18	04/Dec/18	BEL-30 / Function for scalability results			Matúš Kalafut
	BEL-36	DONE	BEL Sprint 4	09/Oct/18	04/Dec/18	Plot curves for FAR, FRR and EER	Plot per each user	<p>x axis - classifier threshold</p> <p>y axis - FAR curve, FRR curve, EER (intersection of FAR and FRR)</p> <p>This plot only applies to classifiers yielding a continuous value on the output (probability, distance, etc.).</p> <p>If the threshold variable has a finite number of possible values, calculate FAR and FRR for each threshold value.</p> <p>Otherwise, select an interval to choose threshold values from and calculate FAR and FRR.</p> <p>If there is no threshold for which FAR = FRR, calculate EER from the two adjacent points where the FAR becomes greater than FRR or vice versa.</p>	Tomáš Jendrej
















T	Key	Status	Sprint	Created	Updated	Summary	Acceptance criteria	Description	Assignee
	BEL-89	<span style="background-color: #d4edda; border: 1px solid #c3e6cb; border-radius: 3px; padding: 2px;">DONE</span>	BEL Sprint 4	07/Nov/18	04/Dec/18	Integration of data processing phases into pipeline	Dataframe containing needed values. Calculated metrics from them.	Phases: <ul style="list-style-type: none"> <li>derived column computation</li> <li>feature extraction</li> <li>user authentication wrapper</li> </ul>	Matej Končál
	BEL-115	<span style="background-color: #d4edda; border: 1px solid #c3e6cb; border-radius: 3px; padding: 2px;">DONE</span>	BEL Sprint 4	26/Nov/18	04/Dec/18	BEL-89 / <a href="#">Change implementation of authentication function</a>		function in ml-module - authentication_metrics should return dataframe with 5 columns: <ul style="list-style-type: none"> <li>user_train (id)</li> <li>real value (y_test)</li> <li>predicted (y_pred)</li> <li>probability 0</li> <li>probability 1</li> </ul>	Matej Končál
	BEL-121	<span style="background-color: #fff3cd; border: 1px solid #ffeeba; border-radius: 3px; padding: 2px;">READY FOR REVIEW</span>	BEL Sprint 4, BEL Sprint 5	02/Dec/18	04/Dec/18	BEL-113 / <a href="#">Implement mobile events logging</a>		Implementation of touch, accelerometer and gyroscope events logging deviceorientation: <a href="https://w3c.github.io/deviceorientation/">https://w3c.github.io/deviceorientation/</a> <a href="https://stackoverflow.com/questions/4378435/how-to-access-accelerometer-gyroscope-data-from-javascript">https://stackoverflow.com/questions/4378435/how-to-access-accelerometer-gyroscope-data-from-javascript</a> test: <a href="https://whatwebcando.today/device-motion.html">https://whatwebcando.today/device-motion.html</a>	Ján Vnec
	BEL-122	<span style="background-color: #d4edda; border: 1px solid #c3e6cb; border-radius: 3px; padding: 2px;">DONE</span>	BEL Sprint 4	03/Dec/18	03/Dec/18	BEL-36 / <a href="#">Create function for plotting FAR, FRR and EER</a>			Michal Manak
	BEL-116	<span style="background-color: #d4edda; border: 1px solid #c3e6cb; border-radius: 3px; padding: 2px;">DONE</span>	BEL Sprint 4	27/Nov/18	03/Dec/18	BEL-89 / <a href="#">Create pipeline for callable object execution</a>		Create class/function, which accepts list of callable object and executes them. Pipeline also accepts parameters for this objects and set them to object before execution.	Kamil Janeče
	BEL-85	<span style="background-color: #d4edda; border: 1px solid #c3e6cb; border-radius: 3px; padding: 2px;">DONE</span>	BEL Sprint 4	06/Nov/18	30/Nov/18	<a href="#">Documentation</a>			Michal Balážov
	BEL-96	<span style="background-color: #d4edda; border: 1px solid #c3e6cb; border-radius: 3px; padding: 2px;">DONE</span>	BEL Sprint 4	12/Nov/18	27/Nov/18	BEL-85 / <a href="#">Documentation of software engineering project</a>	Documentation contains all described parts	Should contain: <ul style="list-style-type: none"> <li>description of our project</li> <li>our goals <ul style="list-style-type: none"> <li>what we want to achieve in our project</li> </ul> </li> <li>big picture <ul style="list-style-type: none"> <li>architecture</li> </ul> </li> <li>description of every module</li> <li>technical documentation</li> </ul>	Michal Manak
	BEL-95	<span style="background-color: #d4edda; border: 1px solid #c3e6cb; border-radius: 3px; padding: 2px;">DONE</span>	BEL Sprint 4	12/Nov/18	27/Nov/18	BEL-85 / <a href="#">Project management documentation</a>	Documentation contain all described parts	Should contain: <ul style="list-style-type: none"> <li>team members and their assigned roles</li> <li>methodologies</li> <li>completed sprints <ul style="list-style-type: none"> <li>summarizations, retrospectives</li> </ul> </li> <li>exports from JIRA</li> </ul>	Michal Manak
	BEL-126	<span style="background-color: #fff3cd; border: 1px solid #ffeeba; border-radius: 3px; padding: 2px;">TO DO</span>	BEL Sprint 5	04/Dec/18	04/Dec/18	<a href="#">Presentation for MTS</a>		Create and prepare presentation for MTS.	Unassigned

T	Key	Status	Sprint	Created	Updated	Summary	Acceptance criteria	Description	Assignee
	BEL-125	TO DO	BEL Sprint 5	04/Dec/18	04/Dec/18	Documentation - WS final		Prepare documentation for final submission.	Unassigned
	BEL-124	TO DO	BEL Sprint 5	04/Dec/18	04/Dec/18	Create scenario for demo	Stories for demo implementation Document containing more technical info about demo application.	Plan demo execution.	Unassigned
	BEL-11	TO DO	BEL Sprint 5	07/Oct/18	04/Dec/18	Allow to choose frequency of logging from mobile devices	Logged data visible on server for various frequency settings	As a researcher I want to be able to set the frequency of logging of individual sensors in order to preserve website performance while logging. If chosen frequency exceeds device frequency, keep all data.	Ján Vnec
	BEL-62	TO DO	BEL Sprint 5	23/Oct/18	04/Dec/18	Apply predefined criteria for splitting raw data to segments	Dataframe containing segment id	Examples of split criteria: <ul style="list-style-type: none"> <li>explicit events - for touch screen, all data between touch-down and touch-up form one segment (define start and end criteria by defining values of desired rows)</li> </ul>	Michal Manak
	BEL-1	DONE		02/Oct/18	15/Oct/18	VM setup	VM is setup correctly (nginx, jira, confluence, firewall, product app, TLS) Website is created and deployed.		Kamil Janeček
	BEL-4	DONE		02/Oct/18	08/Oct/18	BEL-1 / Setup webpage deploy to VM		Gitlab-CI -> copy to VM. / create user, folder, nginx settings/	Michal Manak
	BEL-102	TO DO		13/Nov/18	04/Dec/18	Create demo implementation of authentication process		As users of our product, we want to see our product in action.	Unassigned
	BEL-118	TO DO		27/Nov/18	04/Dec/18	Create survey about demo architecture possibilities		server -identifikuje sa session -stranka bude posielat eventy -ked stranka da pokyn ze su data vyzbierane, server bude vediet get a natrenovat -model ulozit a zo stranky prijmat data a klasifikovat  stranka - dalsia aplikacia (2 mody - zbieranie, test: 2 fazy) - vymysliet scenar  ML module - package	Unassigned
	BEL-120	TO DO		28/Nov/18	28/Nov/18	Investigate & fix webpage deployment		<a href="https://gitlab.com/tp-fastar/webpage/blob/master/.gitlab-ci.yml">https://gitlab.com/tp-fastar/webpage/blob/master/.gitlab-ci.yml</a>	Unassigned
	BEL-119	TO DO		28/Nov/18	28/Nov/18	Interactive Data Analysis		As a researcher, I want to experiment with behavioral biometric data interactively so that I can perform the analysis of behavioral biometric data more efficiently.	Unassigned
	BEL-24	TO DO		09/Oct/18	28/Nov/18	Apply preprocessing methods to logged data during analysis			Unassigned
	BEL-103	TO DO		13/Nov/18	28/Nov/18	Extract features from frequency domain			Unassigned

T	Key	Status	Sprint	Created	Updated	Summary	Acceptance criteria	Description	Assigne
	BEL-90	TO DO		07/Nov/18	28/Nov/18	Tag extracted features		<p>Purpose of tags: Determining the appropriateness of each feature for specific goals of user modeling. Can help select relevant features and consequently improve recognition results.</p> <p>Example:</p> <ul style="list-style-type: none"> <li>mean velocity - high observability (insecure, unsuitable for user authentication), good distinctiveness (for e.g. emotion recognition)</li> <li>start/end x, y - high consistency and distinctiveness for specific gestures (e.g. active authentication), barely usable for free movements (e.g. continuous authentication)</li> </ul> <p>For each tag, each claim should be supported by providing links to relevant sources (articles, papers).</p>	Unassign
	BEL-31	TO DO		09/Oct/18	28/Nov/18	Visualization of raw data, events, preprocessed data and results			Unassign
	BEL-28	TO DO		09/Oct/18	28/Nov/18	Simplify training and testing of user models for experiments			Unassign
	BEL-37	TO DO		09/Oct/18	28/Nov/18	Add events to raw data visualization		<p>Events:</p> <ul style="list-style-type: none"> <li>device-specific (mouse-down, ...)</li> <li>custom</li> </ul> <p>Different types of events should be marked differently.</p>	Unassign
	BEL-33	TO DO		09/Oct/18	28/Nov/18	Visualization of segments			Unassign
	BEL-32	TO DO		09/Oct/18	28/Nov/18	Visualization of raw data			Unassign
	BEL-35	TO DO		09/Oct/18	27/Nov/18	Plot DET curve		DET = detection error trade-off	Unassign
	BEL-34	TO DO		09/Oct/18	27/Nov/18	Plot ROC curve		ROC = receiver operating characteristic	Unassign
	BEL-10	DONE		07/Oct/18	27/Nov/18	Allow to choose sensors to log from mobile devices		<p>As a researcher, I want to be able to easily select which sensors from mobile devices are logged from a website so that I can obtain relevant data up front and potentially prevent degradation of the website performance.</p>	Unassign
	BEL-117	TO DO		27/Nov/18	27/Nov/18	CLONE - Apply predefined criteria for splitting raw data to segments		<p>Examples of split criteria:</p> <ul style="list-style-type: none"> <li>difference in values of a column <ul style="list-style-type: none"> <li>e.g. rapid change in velocity -&gt; new segment</li> </ul> </li> </ul>	Unassign

T	Key	Status	Sprint	Created	Updated	Summary	Acceptance criteria	Description	Assignee
	BEL-9	TO DO		07/Oct/18	27/Nov/18	Log raw data from mobile devices		<p>As a researcher I want to log raw data from mobile devices on the web so that I can use the data for further analysis.</p> <p>Mobile devices = for now, smartphones and tablets</p> <p>Raw data to log:</p> <ul style="list-style-type: none"> <li>touch screen <ul style="list-style-type: none"> <li>touch size</li> <li>major and minor axis of touch area</li> <li>do not forget to support multi-touch gestures</li> </ul> </li> <li>sensors (except of accelerometer, gyroscope) <ul style="list-style-type: none"> <li>values (e.g. acceleration in x, y, z)</li> <li>timestamp</li> </ul> </li> </ul> <p>Some of the sensors (or fields therein) may not be supported on all browsers/devices, this may help:</p> <ul style="list-style-type: none"> <li><a href="https://github.com/Modernizr/Modernizr">https://github.com/Modernizr/Modernizr</a></li> </ul> <p>References:</p> <ul style="list-style-type: none"> <li><a href="https://developer.mozilla.org/en-US/docs/Web/API/Touch_events/Using_Touch_Events">https://developer.mozilla.org/en-US/docs/Web/API/Touch_events/Using_Touch_Events</a></li> </ul>	Unassigned
	BEL-114	TO DO		20/Nov/18	20/Nov/18	Integration of data processing phases into pipeline		<p>Phases:</p> <ul style="list-style-type: none"> <li>derived column computation</li> <li>feature extraction</li> <li>user authentication wrapper</li> <li>scalability evaluation wrapper</li> </ul>	Unassigned
	BEL-6	TO DO		06/Oct/18	20/Nov/18	Log and store raw data and events from websites			Unassigned
	BEL-110	DONE		16/Nov/18	20/Nov/18	BEL-106 / Add SAST checking		<p><a href="https://gitlab.com/help/user/project/security_dashboard">https://gitlab.com/help/user/project/security_dashboard</a>  <a href="https://gitlab.com/help/ci/examples/sast.md">https://gitlab.com/help/ci/examples/sast.md</a></p> <p>e.g.:  <a href="https://gitlab.com/tp-fastar/server/pipelines/36906104/security">https://gitlab.com/tp-fastar/server/pipelines/36906104/security</a></p>	Unassigned
	BEL-111	IN PROGRESS		19/Nov/18	19/Nov/18	BEL-106 / Error handling			Unassigned
	BEL-106	TO DO		15/Nov/18	19/Nov/18	Technical debt - server module			Kamil Janeče
	BEL-105	TO DO		15/Nov/18	19/Nov/18	BEL-106 / Implement logging in server module		<a href="http://flask.pocoo.org/docs/1.0/logging/">http://flask.pocoo.org/docs/1.0/logging/</a>	Unassigned
	BEL-109	TO DO		15/Nov/18	15/Nov/18	BEL-106 / Documentation		docstrings readme	Unassigned
	BEL-108	TO DO		15/Nov/18	15/Nov/18	BEL-106 / Repository structure		atleast move docker-compose files to separate folder <a href="https://gitlab.com/tp-fastar/server">https://gitlab.com/tp-fastar/server</a>	Unassigned
	BEL-107	TO DO		15/Nov/18	15/Nov/18	BEL-106 / Improve logger detection		<a href="https://gitlab.com/tp-fastar/server/blob/develop/behometrics/util.py#L10">https://gitlab.com/tp-fastar/server/blob/develop/behometrics/util.py#L10</a>	Unassigned
	BEL-104	TO DO		14/Nov/18	14/Nov/18	Specify hierarchy of criteria to split data to segments		To achieve ultimate flexibility in splitting data to segments, pass a hierarchical structure (e.g. lists of lists) to the segment split function. This very likely replaces feature extraction from parts of a single segment.	Unassigned

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	BEL-61	TO DO		23/Oct/18	13/Nov/18	Compute derived columns from raw data	Computed columns are visible in table with raw data.	<p>Compute additional derived columns from raw data as per the IWC 2018 article that are not implemented yet.</p> <p>Make sure the columns are scalable with regards to:</p> <ul style="list-style-type: none"> <li>the number of axes (e.g. mouse coordinates have two axes, accelerometer has three). Examples: velocity for each axis, velocity magnitude for each combination of axes (pairs, triplets, ...), angular velocity for each pair of axes.</li> <li>the number of "sources" - a mouse has only one source of coordinates, Leap Motion yields 3D coordinates for a multitude of points on hands (palm, wrist, fingertips, finger joints).</li> </ul>	Unassigned
	BEL-12	TO DO		07/Oct/18	07/Nov/18	Log device metadata		<p>As a researcher</p> <p>I want to log metadata about the currently used device for browsing so that I can distinguish raw data from different devices.</p> <p>Fields:</p> <ul style="list-style-type: none"> <li>type - mouse, mobile device, ...</li> <li>device sensor - touch, accelerometer, ... (undefined if type is mouse)</li> <li>OS, version, model</li> <li>a unique device identifier</li> </ul>	Unassigned
	BEL-13	DONE		07/Oct/18	23/Oct/18	Log Session Metadata		<p>As a researcher</p> <p>I want to log information about the current session so that I can distinguish raw data from multiple sessions.</p> <p>Fields:</p> <ul style="list-style-type: none"> <li>session identifier</li> <li>user identifier</li> </ul>	Unassigned
	BEL-53	DONE		16/Oct/18	23/Oct/18	Log User ID		<p>As a researcher</p> <p>I want to log user ID during experiments so that I can distinguish data from multiple participants</p> <p>How should we determine the user ID?</p>	Unassigned
	BEL-20	DONE		08/Oct/18	23/Oct/18	Project kickoff			Unassigned
	BEL-19	DONE		08/Oct/18	21/Oct/18	Team setup			Tomáš Jendrej
	BEL-16	DONE		08/Oct/18	15/Oct/18	BEL-19 / Webpage	<p>Webpage meets all the minimum requirements.</p> <p>Webpage is available on team04-18.studenti.fiit.stuba.sk.</p>	<p><b>Website minimum requirements:</b></p> <ul style="list-style-type: none"> <li>team name</li> <li>information about teammates</li> <li>project plan</li> <li>current state of plan</li> <li>teammates roles</li> <li>links to documentation and meetings records</li> <li>all interesting things connected with the project and the project workflow</li> </ul>	Ján Vn
	BEL-5	DONE		06/Oct/18	15/Oct/18	BEL-1 / Current server deployment	Test	setup CI for current server deployment	Matej Končál
	BEL-51	DONE		13/Oct/18	14/Oct/18	BEL-19 / Font webpage	Characters with diacritic are consistent with other characters	Characters with diacritics are not consistent with other characters. Change it.	Michal Manak

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	BEL-14	<span style="border: 1px solid green; padding: 2px;">DONE</span>		08/Oct/18	09/Oct/18	BEL-19 / <a href="#">Assign roles</a>	Every team member has assigned role	Assign roles to everyone in team: <ul style="list-style-type: none"> <li>• scrum master - <a href="#">Michal Manak</a></li> <li>• documentation - <a href="#">Michaela Balážová</a></li> <li>• code quality (code review, review of created tests) - <a href="#">Kamil Janeček</a></li> <li>• frontend - <a href="#">Ján Vnenčák</a></li> <li>• server admin - <a href="#">Matej Končál</a></li> <li>• testing - <a href="#">Tomáš Jendrejčák</a></li> <li>• implementation - <a href="#">Matúš Kalafut</a></li> </ul> Discuss and figure out (later, during project) how to assign another roles like developer, versioning, backend ...	<a href="#">Micha</a> <a href="#">Balážo</a>
	BEL-15	<span style="border: 1px solid green; padding: 2px;">DONE</span>		08/Oct/18	08/Oct/18	BEL-19 / <a href="#">Team logo</a>	created logo of team	create logo of our team <a href="https://logomakr.com/6z0HoX">https://logomakr.com/6z0HoX</a> <a href="https://team04-18.studenti.fiit.stuba.sk/wiki/display/BEH/Team+identity">https://team04-18.studenti.fiit.stuba.sk/wiki/display/BEH/Team+identity</a>	<a href="#">Micha</a> <a href="#">Balážo</a>
	BEL-2	<span style="border: 1px solid green; padding: 2px;">DONE</span>		02/Oct/18	06/Oct/18	BEL-1 / <a href="#">Confluence</a>		Cakame na ramku: <a href="https://tfs.fiit.stuba.sk:8443/tfs/StudentsProjects/TP%20Virtual%20Machines/_workitems?id=8857">https://tfs.fiit.stuba.sk:8443/tfs/StudentsProjects/TP%20Virtual%20Machines/_workitems?id=8857</a>  Vyžera, ze to vie rozumne bezat z dockeru: <a href="https://hub.docker.com/r/atlassian/confluence-server/">https://hub.docker.com/r/atlassian/confluence-server/</a>	<a href="#">Kamil</a> <a href="#">Janeče</a>
	BEL-3	<span style="border: 1px solid green; padding: 2px;">DONE</span>		02/Oct/18	02/Oct/18	BEL-1 / <a href="#">TLS</a>		Dufam, ze let's encrypt pojde aj ked nemame vlastnictvo domeny. Nahodit do nginxu.	<a href="#">Matej</a> <a href="#">Končál</a>