DBHandler

DBHandler.py

Defines database models using orm_sqlite

Models

- Material
- id : Integer Primary Key
- name: String
- batch: String
- Experiment
- id : Integer Primary Key
- name: String
- material: Integer Foreign Key
- date: Date
- time: Time
- load_loss_limit: Float
- max_load: Float
- max_travel: Float
- max_time: Float
- compress: Boolean
- z_axis_speed: Float
- Body
- id : Integer Primary Key
- body_type: String
- material: Integer Foreign Key
- param_a: Float
- param_b: Float
- height: Float
- Reading

- id: Integer Primary Key
- experiment: Integer Foreign Key
- load: Float
- z_pos: Float
- time: Float

Classes

DBHandler

Handles database connection and CRUD operations

Methods

- **init**(self, db_path)
- Creates database connection, binds models to database, creates and populates the database if it doesn't exist
- db_path: Path to database file
- add_material(self, name, batch)
- name: Name of the material
- batch: Batch number of the material
- add_experiment(self, name, material, date, time, load_loss_limit, max_load, max_travel, max_time, compress, z_axis_speed)
- name: Name of the experiment
- material: Name of the material
- date: Date of the experiment
- time: Time of the experiment
- load_loss_limit: Load loss limit of the experiment
- max_load: Maximum load of the experiment
- max_travel: Maximum travel of the experiment
- max_time: Maximum time of the experiment
- compress: Whether the experiment is compressive or not
- z_axis_speed: Speed of the z axis
- add_reading(self, experiment, load, z_pos, time)
- experiment: Name of the experiment
- load: Load of the reading

- z_pos: Z position of the reading
- time: Time of the reading
- get_materials(self)
- Returns all materials in the database
- get_material_by_id(self, id)
- id: Id of the material
- Returns the material with the given id
- get_bodies(self)
- Returns all bodies in the database
- get_body_by_id(self, id)
- id: Id of the body
- Returns the body with the given id
- get_bodies_by_material(self, material)
- material: Name of the material
- Returns all bodies with the given material
- get_bodies_by_type(self, body_type)
- body_type: Type of the body
- Returns all bodies with the given type
- get_bodies_by_material_and_type(self, material, body_type)
- material: Name of the material
- body_type: Type of the body
- Returns all bodies with the given material and type
- get_experiments(self)
- Returns all experiments in the database ordered by date and time descending
- get_experiment_by_id(self, id)
- id: Id of the experiment
- Returns the experiment with the given id
- get_experiments_by_material(self, material)
- material: Name of the material
- Returns all experiments with the given material
- get_experiments_by_date(self, date)
- date: Date of the experiment

- Returns all experiments with the given date
- get_experiments_by_date_and_material(self, date, material)
- date: Date of the experiment
- material: Name of the material
- Returns all experiments with the given date and material
- get_experiment_readings(self, experiment)
- experiment: Name of the experiment
- Returns all readings of the given experiment
- delete_experiment_by_id(self, id)
- id: Id of the experiment
- Deletes the experiment with the given id and all its readings
- delete_material_by_id(self, id)
- id: Id of the material
- Deletes the material with the given id and all its experiments and readings
- populate(self)
- Populates the database with some dummy data