PolytechWebThings - web application in an IoT sphere.

The main purpose of this application is to provide user-friendly graphical interface for creating and executing complex use cases for IoT device

The application strongly relies on Mozilla WebThings Gateway and use it as a proxy for a target IoT subnetwork.

The application uses Web of Things standards for communicating with devices. Only devices, which implement those standards, could be used by application.

Web of Things standards as well as Mozilla WebThings Gateway supports virtual devices (things), which contain the same properties and interfaces as real analogues. As a result, the PolytechWebThings may be tested with virtual devices and then used with real ones without additional changes.

Links:

[Web of Things description](https://en.wikipedia.org/wiki/Web_of_Things)

[Mozilla WebThings Gateway](https://iot.mozilla.org/gateway/)

Use cases for the PolytechWebThings application:

1. User account and authentication:
   1. As an administrator, I want to give access to the application only for authorized users, so that each user will be able to use only related personal account
   2. As a user, I want to register a new account, so that I can use this account later
   3. As a user, I want to login into my account, so that I can have access to my personal account and application features
   4. As a user, I want to have my account secured, so that only trusted people have access to my account.
   5. As a user, I want to create working session after the successful login, so that I will be able to access the application on the same PC without additional login after this PC is reloaded
   6. As an administrator, I want to stop the user`s working session after predefined time, so that user account will be secured if it has forgotten session.
   7. As a user, I want to logout from my account, so that my working session is ended and after that I will need to login again (maybe in an another account)
2. Workspaces and connection to Mozilla WebThings Gateway
   1. As a user, I want to create one or multiple workspaces, each of them should represent my IoT network (at home, at work, etc), so that I am able to manage multiple networks from one account.
   2. As an administrator, I want user to add in each workspace the link to relevant Mozilla WebThings Gateway (http(s) url) and API token from it, so that the application will be able to connect to user`s IoT network
   3. As a user, I want to have some confirmation when the connection with my IoT network is set, so that I will be sure that it works fine.
   4. As a user, I want to see meaningful message each time, when there are some problems with connection to my IoT network, so that I will know what is wrong and probably will fix it.
3. Things
   1. As a user, I want to see in my workspace all devices (things), which are connected to my IoT network, so that I can manage them. (each device should be connected to network and Gateway manually by the user).
   2. As a user, I want to see information about each device, which includes type, properties and functions of the device, so that I will know how to work with this device.
   3. As a user, I want to get value of properties of a device, so that I will know a state of the device.
   4. As a user, I want to invoke functions of a device, so that I will be able to change a state of the device.
   5. As a user, I want to see status of each device (connected, executing action, updating, unavailable etc).
   6. As a user, I want to filter device by name and type, so that I can faster find the necessary device.
4. Rules
   1. As a user, I want see all available rules, so that I can edit or invoke them.
   2. As a user, I want to create rule, which may evaluate device`s properties and functions, so that I can run it later.
   3. As a user, I want to call rule manually, so that I can run rule when I want.
   4. As a user, I want to schedule automatic rule execution, so that I can schedule automatic execution of a rule.
   5. As a user, I want to edit existing rule, so that I can modify the rule.
   6. As a user, I want to delete existing rule, so that I can get rid of unnecessary rule.
   7. As a user, I want to disable (and then enable rule), so that I can temporary disable unnecessary rule.
   8. As a user, I want to call one rule from another, so that I can organize rules in hierarchy and use high-level rules to call low-level ones.
   9. As a user, I want to organize rules in folders, so that I can keep similar rules together.
   10. As a user, I want to see results of rule execution, so that I can use rules for fetching data and see the state system after rule execution.
5. Logs
   1. As a user, I want to see logs of each rule execution, so that I will be able to see a history of rules execution.
   2. As a user, I want to see logs about rules modifying, so that I can remember when and how I modify my rules.
   3. As a workspace owner, I want to see logs about logging into my workspace, so that I know who access my workspace.
   4. As an administrator, I want to have access to all user`s logs, so that I will be able to monitor the user activity.
   5. As an administrator, I want to have logs about all exceptional situations in the system, so that I will be able to investigate and fix problems in the system.