

The ASE - Assignment Environment is an automated testing environment

- The tasks are always in the same form
 - You retrieve the task by making a GET-request on the url for the given stage
 - You send your solution via POST-request to the same url which you got the task from
 - If you try to retrieve a task which does not exist you will produce a status **404 RESOURCE_NOT_FOUND**
- After sending your solution via POST-request you will get following result
 - **On correct solution**, status: **202 ACCEPTED**, message: Accepted, <link to the next task>
 - **On wrong solution**, status: **417 EXPECTATION_FAILED**, message: Expectation Failed
 - **On malformed solution**, status: **400 BAD_REQUEST**, message: <proper error message>
 - **On processing error**, status: **500 SERVER_ERROR** message: <proper error message>
 - **If using an invalid token**, status: **401 UNAUTHORIZED** message: <proper error message>
 - **If trying to access something you do not have permission yet**, status: **403 FORBIDDEN** message: <proper error message>
- For successfully completing the assignment your software has to solve all test cases automatically without errors during the test cases within 10 minutes

- Most API operations require a token.
- Such a token can be retrieved with a GET request to **Url:** `https://reset.inso.tuwien.ac.at/ase/<scenarioPrefix>/assignment/<yourMatrikelnr>/token`
- A token stores how much progress you already made and has an expiration duration of 10 minutes.
- When submitting a correct solution you will be provided with a new token which allows to access subsequent testcases. This new token is part of the URL of the next test case or in case all test cases are finished of the last url, which just returns a congratulatory message.
- You must solve every testcase in every stage sequentially as the token from the previous testcase is required to read the next one.
- When you submit a wrong solution, the system will remember and not issue any more tokens which state that you solved more testcases, even if you subsequently submit a correct solution to the testcase for which you submitted a wrong solution. You have to retrieve a new token. This is done in order to prevent brute force approaches.
- Retrieving a new token resets an internal random seed. Some test cases are randomized and for those you will get different test cases after retrieving a new token using the mentioned GET request.

There are 4 different API Endpoints:

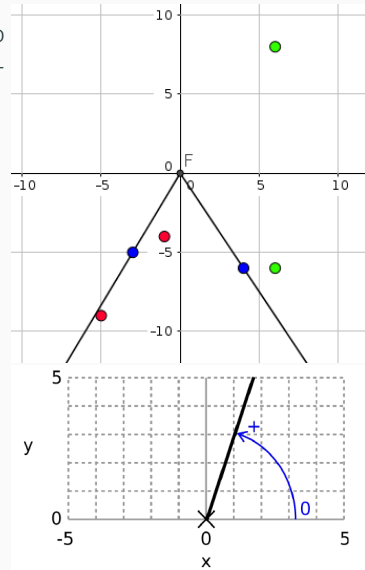
- GET Url: `https://reset.inso.tuwien.ac.at/ase/<scenarioPrefix>/assignment/<yourMatrikelnr>/token`
 - Retrieves a new token, and resets randomly created test cases
- GET Url:
`https://reset.inso.tuwien.ac.at/ase/<scenarioPrefix>/assignment/<yourMatrikelnr>/stage/2/testcase/<testcase>?token=<token>`
 - Retrieves a test case
- POST Url:
`https://reset.inso.tuwien.ac.at/ase/<scenarioPrefix>/assignment/<yourMatrikelnr>/stage/2/testcase/<testcase>?token=<token>`
 - Submit your solution
- GET Url: `https://reset.inso.tuwien.ac.at/ase/<scenarioPrefix>/assignment/<yourMatrikelnr>/finish?token=<token>`
 - This endpoint is returned as “next” test case if everything is solved.

Url: <https://reset.inso.tuwien.ac.at/ase/<scenarioPrefix>/assignment/<yourMatrikelnr>/stage/2/testcase/<testcase>?token=<token>>

Description: Sometimes obstacles span between two points (pointA, pointB). It is still possible, that an obstacle is given by a line.

Task:

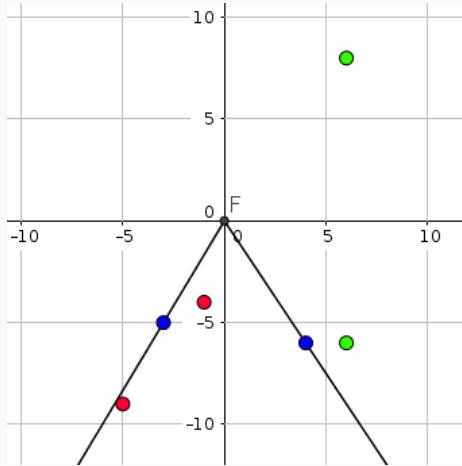
- Filter out all points that lie between two rays from the origin through the two points.
- You can assume that there will not be any ambiguous points (points that are directly on the ray) and that both points of the obstacle are at the same side of the x axis (they have the same sign).
- In some tasks the obstacle will be given as in stage 1.
- Hint: You may want to compute the angle of points, take a look at the $\text{atan2}(y, x)$ function (available at least in Java and Python).



$\text{atan2}(y, x)$

Example:

```
{
  "obstacle": {
    "pointB": {"x": -3, "y": -5},
    "pointA": {"x": 4, "y": -6}
  },
  "targets": [
    {"x": -1, "y": -4},
    {"x": -5, "y": -9},
    {"x": 6, "y": -6},
    {"x": 6, "y": 8}
  ]
}
```



Communication Sample:

Url: <https://reset.inso.tuwien.ac.at/ase/<scenarioPrefix>/assignment/<yourMatrikelnr>/stage/2/testcase/<testcase>?token=<token>>

GET-request:

```
{
  "obstacle":{
    "pointB":{"x":-3, "y":-5},
    "pointA":{"x":4, "y":-6}
  },
  "targets":[
    {"x":-1, "y":-4},
    {"x":-5, "y":-9},
    {"x":6, "y":-6},
    {"x":6, "y":8}
  ]
}
```

POST-request:

```
{
  "accessiblePoints":[
    {"x":6, "y":-6},
    {"x":6, "y":8}
  ]
}
```

Result:

```
{
  "message": "Accepted",
  "linkToNextTask": "https://reset.inso.tuwien.ac.at/ase/<scenarioPrefix>/assignment/<yourMatrikelnr>/stage/2/testcase/2?token=eyJhbGciOiI..."}
}
```