Vali Andmetarkus!

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Baltic Computer Systems
BCS Koolitus

Päevakava

- 09:00 – 10:30 – Koolitus
- 10:30 – 10:45 – Paus
- 10:45 – 12:15 – Koolitus
- 12:15 – 13:15 – Lõunapaus
- 13:15 – 14:45 – Koolitus
- 14:45 – 15:00 – Paus
- 15:00 – 16:30 – Koolitus

Teemad (Python) päev 2

- Andmed tekstifailist (lugemine ja salvestamine
- Andmete lugemine Excelist (pandas)
- Andmete lugemine REST teenusest
- Python faili loomine ja selle käivitamine
- Andmete salvestamine lokaalselt (txt, json jt vormingud)
- Series, Dataframes
- Andmete visualiseerimise (graafikud, joonised jne)
- Jupyter Notebook ja muud andmete esitluse viisid

Ettevalmistus

- Kausta ja .py failide struktuur
- Klassid ja nende meetodid

- https://packaging.python.org/en/latest/tutorials/installing-packages/
- Virtuaalse keskkonna kasutamine, pakettide paigaldus jne

Failist lugemine (näidis)

```python
class FileOperations:
    """Load data from file or save data to file."""

    def open_file(file_name: str) -> str:
        try:
            with open(file_name, encoding='utf-8') as f:
                data = f.read()
                return data
        except:
            print("File not found: " + file_name)
            return False
```

https://pydoc.pages.taltech.ee/input_output/read_from_file/reading-file.html

https://pydoc.pages.taltech.ee/input_output/read_from_file/reading-csv.html

Faili salvestamine (näidis)

```python
def write_to_file(file_name: str, data: str) -> bool:
    """Write data to file."""
    try:
        with open(file_name, "w", encoding='utf-8') as f:
            f.write(data)
            return True
    except:
        print("Writing to file failed!")
        return False
```

https://pydoc.pages.taltech.ee/input_output/write_to_file/writing-into-existing-file.html

https://pydoc.pages.taltech.ee/input_output/write_to_file/writing-csv.html

Failist lugemine Excel (näidis)

```
import pandas as pd


    def load_data_from_excel_return_dict(file_name: str, sheetname: str, skip_rows: int) -> dict:
        """Load data from excel file."""
        try:
            loaded_data = pd.read_excel(file_name, sheetname, skiprows=skip_rows)
            result = loaded_data.to_dict()
            return result
        except:
            print("File not found: " + file_name)
            return False
```

Faili salvestamine JSON (näidis)

```
import json


    def save_dict_to_json_file(dict_object: dict, file_name: str) -> bool:
        """Make json file from dict"""
        try:
            output = "Files/export/" + file_name + ".json"
            with open(output, "w", encoding='utf-8') as outfile:
                json_object = json.dumps(dict_object, indent=4, ensure_ascii=False)
                outfile.write(json_object)
                return True
        except:
            print("Saving data failed!")
            return False
```

Andmete lugemine REST teenusest

```
from path import Path
from json import dumps
from tools.api_request import get_data


CLASSIFICATIONS_API_PATH = "https://demo-datahub.rik.ee/api/v1/meta/classifications"

classifications = get_data(CLASSIFICATIONS_API_PATH)
path = Path("classifications.json")
path.write_text(dumps(classifications, indent=4, ensure_ascii=False), encoding="utf-8")
```

https://pypi.org/project/path/

Analüüsi töövoog

- Vajaduse sõnastamine
- Andmehõive (vajalike andmete kogumine)
- Andmete ettevalmistus (puhastamine, korrastamine jne)
- Andmete analüüs
- Tulemuste esitlus

PANDAS

https://www.w3schools.com/python/pandas/default.asp

https://pandas.pydata.org/docs/user_guide/index.html#user-guide

https://pandas.pydata.org/docs/reference/index.html

https://pandas.pydata.org/docs/user_guide/visualization.html