**STP’22 | Engineering**

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| **Session** | Web and Cloud |
| **Activity Location** | Ex: Co-working space (Ebda3) |
| **Duration** | 180 minutes |
| **Trainee Numbers** | 10-15 trainee |
| **Prerequisites** | HTML, CSS, some problem-solving skills |
| **Short description** | Session starts with introduction to the web and cloud, content of the whole sessions, the project that they will work on. The session’s content starts then with an introduction to the python syntax and working on a basic login system. After a break, we start talking about the web and the HTTP protocol and apply simply get and post requests using postman |
| **Learning objectives** | * Understand the web and cloud sessions as a whole * Understand python’s syntax * Understand the concept of how the web work * Understand the concept of HTTP protocol * Understand the request response pair of the protocol |
| **Necessary Materials** |  |
| **Assessment method** |  |
| **Background Paper/ information** |  |
| **Participant Guide/ Hand outs (with References)** |  |

**Implementation procedures:**

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| **Slide Number & Title** | **Activity** | **Timings** | **Resources Required** |
| Slide 1: Introduction | Introduce yourself and ask everyone to introduce themselves and share a fun fact | 15 mins |  |
| Slide 2: Quote | Live as if you were to die tomorrow. Learn as if you were to live forever | 1 mins |  |
| Slide 3: Overview | * Python syntax * Networks and APIs * Flask and DBs * Docker * AWS * Project | 3 mins |  |
| Slide 4: Why are we here? | Set expectations. We are not here to be a great full stack web developer! | 2 mins |  |
| Slide 5: Project | Increase expectations. Walkthrough of the project and how we will work on it together | 5 mins |  |
| Slide 6: Content of this session | * Python * Web and HTTP protocol | 1 mins |  |
| Slide 7-8: Why Python? | Python is used everywhere but it is very widely used in two fields:   * Web development * Data science   Python is so popular:   * Support of the community, libraries   Python is used to build popular sites:   * Instagram   Instagram currently features the world’s largest deployment of the Django web framework, written entirely in Python.   * Google   “Python where we can, C++ where we must.”   * Spotify   80% of these services are written in Python.   * Netflix * Uber * Dropbox | 5 mins |  |
| Slide 9: Variables | Python handles datatypes dynamically. That means no need to explicitly declare a datatype **Container** | 5 mins | Jupiter notebook |
| Slide 10: Need Different Styles for Different Situations | **Container of containers** | 3 mins | Jupiter notebook |
| Slide 11: loops and if conditions | Explain that no one style is the best | 3 mins | Jupiter notebook |
| Slide 12: lets build a login system |  | 5 mins | Jupiter notebook |
| Slide 13: dictionary | Change the login app to the data from the dictionary | 5 mins | Jupiter notebook |
| Slide 14: functions | Refactor code into functions | 5 mins | Jupiter notebook |
|  | Import math library | 5 mins | Jupiter notebook |
| BREAK | BREAKKKK | 30 mins |  |
| Slide 15-18: Web and http | THINK TANK   * How does the web work * What is http | 5 mins |  |
| Slide 19: what is http | We are saying hypertext transfer protocol  What is protocol? What is hypertext?   * In this context, protocol is a set of rules allow communication of information between different devices. * Hypertext is text which is displayed on a screen which references another hypertext   In a sentence: protocol used by web servers to transfer web documents. That’s why every URL u type starts with http | 3 mins |  |
| Slide 20-21: concept 1 | HTTP is plain language and human readable. | 1 min |  |
| Slide 22: concept 2 | HTTP is stateless. It doesn’t have memory of users. If you go to a gallery website and show the first photo and then refresh. It will show the first photo. | 1 min |  |
| Slide 23: concept 3 | HTTP works in a request/response pair. Any http starts with a request using one of the methods and ends with a response with a status and data | 1 min |  |
| Demo of http flow | Librarian example | 2 mins | Paper with request and books |
| Demo using postman |  | 10 mins | Postman and a link to resourse |