**Task 1**: Understanding Langchain and its basics

1) Explain in your own words the function and purpose of Langchain.

Langchain is used to work with Large Language Models (LLM). It wraps up more than 20 LLMs and makes their implementation easier. One of the core features is: if you want to build an application which needs to work with LLMs and answer/suggest some things, with the help of langchain you can provide a “knowledge” text, it will preprocess it and give suggestions/answers in the scope of that knowledge. Of course without this it can work also but this will give the users more and more deep answers. Another core features is we can combine together different components to built a more powerful model. Another strong feature is the agent. Agents are used to decide what tool can be used in specific cases.

What are tools ? Tools are wrappers that can work in specific cases. For example you can create your own tool to generate random integers and give instructions to your LLM in case of necessity of generating random numbers use the Tool I have provided.

2) Describe the role of agents in Langchain and provide an example of what they can do.

Agents are used to do specific things that the natural model cannot. They can connect to the outside sources and do the things which the natural model cannot. For example connecting to APIs or executing codes. These can be reached by combining tools with agents. Saying tools we can understand possibilities that our application can do. For example we can combine google-search tool, programming language executor tool and depending on the user’s input agent will decide which should be used. Of course it is possible to create your own tool and use it inside the agent.

3) Explain the purpose and usage of the memory component in Langchain.

Chains and Agents are stateless as their documentation tells. And for example if we create a chatbot and ask several questions to it within a session, and then ask the chatbot “which was my first question” it will fail to give us the answer because it doesn’t remember our previous questions. With the help of memory we can keep the history and our application LLM part will become “stateful”.