

**Critical Thinking Lab**

**Purpose:**

The purpose of this lab is to understand and develop your critical thinking skills. This is achieved by taking some critical thinking tests then grading your peers on the critical thinking tests that they have taken. In this way you will gain feedback on your critical thinking skills and also extend your knowledge by having to grade your peers on their skills.

**Materials:**

You will need:

* Your laptop

**Instructions:**

* Critical thinking answers - Complete this task within 20 minutes
* Choose one of the scenarios in the first section
* Referring to that scenario answer the three questions in the section
* Repeat for sections two and three.
* Critical thinking assessment – Complete this task within 10 minutes
* Pair up with another student
* For each of your pair’s questions rate the complexity of the situation, the effectiveness of their response and the positivity of the results:
* How complex was the situation? (0-5)
* How effective was their response? (0-5)
* How positive were the results? (0-5)
* Present to the class – Complete within 10 minutes including discussion
* Present your scenarios, answers and the assessment given by your pair to the class

* **Recognising Assumptions**

When you make a statement that holds something to be true in the absence of proof then you are making an assumption. Assumptions can be either stated or remain unstated. By identifying these assumptions, you can reveal information gaps and develop perspective and insight into an issue. Aim to:

* Explicitly identify assumptions
* Seek out different views into a situation from multiple stakeholders
* Evaluate assumptions and how appropriate they are for the situation especially the risks if they are not true

**Scenarios: “Tell me about a time…” (Select one of the following)**

* That your assumptions were different to someone else’s
* When you had to make a decision that required assumptions.
* Your assumptions were challenged by someone

**Answers:**

What was the situation and your role?

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| Scenario: I was working as a developer for a software company that was hired by a client to develop a mobile app for their e-commerce store. The client wanted to launch a new product in the market and my role was to develop the app's features related to purchasing the product.  Real Life:  I was working as a back end developer for a nft project for redacted cartel. I focused on getting the project done in order to have a working demo. My assumption was that this proiduct was done on-chain. |

What did you do? How effective was it?

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| Scenario: I had to communicate to the client to gain an understanding of product requirements. I also made assumptions that the user would prefer a simple and efficient checkout process, with clear product descriptions and images and secure payment process. My priority on the design was developing an easy to use interface and integrating reputable payment gateways etc stripe & apple pay.   The assumptions were effective as it was well recieved by user feedback during testing. The checkout process had zero problems and this resulted in the client being happy as there was a high number of sales upon software launch.  Real Life:  In the meeting I found out that they do the crypto processing off-chain so the smart contract on chain was redunted. |

What were the results that came from your actions? How did others influence these outcomes?

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| As the mobile app got more popular, it was found that we left out more advanced features such as social media sharing and recommended items to purchase. While these were valid points, the client did not account for this in the budget and timeline for the project. In the future for an ecommerce app I will have to consider more advanced features for the marketing and growth of the app and include it in the cost of the development.   Real Life: Dont start work unless the client gives a clear understanding on what they want. |

* **Evaluating Arguments**

Arguments are made up of assertions which persuade someone to act in a certain way or believe something. When you analyse someone’s argument you need to break down their assertions and analyse them objectively. To do this you must overcome confirmation bias and emotion. Then you can determine whether or not to believe an argument and how to respond. Aim to:

* Be objective, accurate and thorough, so as to consciously deal with emotion and confirmation bias
* Analyse the reasoning and evidence of an argument
* Consider counterarguments even though they may challenge people

**Scenarios: “Tell me about a time…” (Select one of the following)**

* When you were presented with an argument about an important issue
* You were forced to consider a point of view that was opposed to yours on a major issue
* You evaluated a controversial idea

**Answers:**

What was the situation and your role?

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| real life:  Engineering graduate for an aluminium manufacturing company. I had to investigate if there was a better way to package and transport aluminium. I had to choose between re-usable plastic, wood and cardboard. |

What did you do? How effective was it?

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| real life:  I travelled in the truck to see the transport process. Talked to the more experinced team about previous materials used. I tested plastic, cardboard and followed the truck and assesed damage.  It was an effective way to test the packaging and processing of alumnium. I presented my analysis to the team and provided evidence and reasoning to support my conclusion. My argument was well received by the team and we ultimately decided not to adopt the new methodology. |

What were the results that came from your actions? How did others influence these outcomes?

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| real life:  The team was well informed about the different materials and found that if there was to be a change in materials used it would have to be cardboard. What was found is that the cardboard design had a patent and would have needed a local manufacturing plant which would have been to costly.My analysis and presentation played an important role in this decision, and I was able to effectively communicate my reasoning and evidence. Other team members also contributed to the discussion and provided valuable insights and perspectives, which helped us reach a consensus. Overall, it was a collaborative effort that resulted in a better outcome for the project. |

* **Drawing Conclusions**

By using Deduction, Interpretation and Inference, you can make judgements about an issue, which is known as drawing a conclusion. Deductions are simple conclusions that are only drawn from facts. Interpretation is how well the facts being used to draw conclusions. An inference is a conclusion based on an assumption and not a fact, e.g. “These sheeps are white, therefore all sheep are white.” Aim to:

* Gather all relevant information of a variety of quality
* Remain within the supporting evidence you have or justify when you go beyond it
* Respond appropriately based on compelling evidence

**Scenarios: “Tell me about a time…” (Select one of the following)**

* You needed to gather more information before an important decision could be made
* A big decision had to be made and the stakes were high
* You needed to make a decision but the information you had was contradictory

**Answers:**

What was the situation and your role?

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| Real life: Engineering intern at Buckley Systems. Designing a new way to wind copper coils and unravel copper spools. Had to replace old technology with new Technology. |

What did you do? How effective was it?

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| Real life: Created a working protoype using machine vision to measure the width of the copper wire for higher accurcy. Used magnets to change the tension on a copper spool. The protoype was working and funcntional. |

What were the results that came from your actions? How did others influence these outcomes?

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| Real life: The products were not suitable for an industrial enviroment and weren't used in current production. |