

**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:**

1. Critical thinking answers - Complete this task within 20 minutes
   1. Choose one of the scenarios in the first section
   2. Referring to that scenario answer the three questions in the section
   3. Repeat for sections two and three.
2. Critical thinking assessment – Complete this task within 10 minutes
   1. Pair up with another student
   2. For each of your pair’s questions rate the complexity of the situation, the effectiveness of their response and the positivity of the results:
      1. How complex was the situation? (0-5)
      2. How effective was their response? (0-5)
      3. How positive were the results? (0-5)
3. Present to the class – Complete within 10 minutes including discussion
   1. Present your scenarios, answers and the assessment given by your pair to the class
4. **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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| --- |
| Assuming that there will be some server slowness overnight when running a complex data loading process. I was the developer and who did the deployment. |

What did you do? How effective was it?

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| --- |
| Planned according to assumptions to be safe and there was no way of exactly evaluating any potential slowness in the coming hours |

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

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| Successfully managed to run it on time. Other team members gave their input and agreed with my decision. |

1. **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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| --- |
| Someone at work presented a different logic to a programming task I was working on. Picking the best approach and saving time was critical for this task. |

What did you do? How effective was it?

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| --- |
| Conducted a test run with both approaches on a set of test data and measured the time. Very effective as it’s quantitative approach. |

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

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| --- |
| Ended up selecting the method that was suggested by the colleague and managed to save time. |

1. **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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| --- |
| Picking a course for studying Data Science |

What did you do? How effective was it?

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| --- |
| Research online as much as I can on available programs ranging from short online courses and Masters programs. It was quite effective due to the information available online. I could find info on people who completed the program successfully and that successfully made career changes or found better jobs than they were doing. |

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

|  |
| --- |
| Managed to find a program that fits my needs, budget and also provide the right training. |