**Reading (VIPERS FORM)**

Use this form to record key ideas from reading to prepare for the lessons.  make sure you upload the completed form in TEAMS (Reading section)

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| Topic you prepared: | Links used: |
| Stacks | [Stacks — Isaac Computer Science](https://isaaccomputerscience.org/concepts/dsa_datastruct_stack?examBoard=all&stage=all) |

Terms: Write any new technical term and their meaning, add more rows if needed.

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| **Terms** | **Meaning** |
| Stack | an abstract data type that holds an ordered, linear sequence of items |
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| **Stack overflow** | Occurs when adding items to the stack, over the fixed limit |
| **Stack underflow** | occurs if you try to remove elements from an empty stack. |

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| **What can we understand from the topic?** |
| Stacks can involve a static or dynamic implementation. This may find certain syntax has built in structures that can be used to use a stack.  A stack can be implemented dynamically using a [linked list](https://isaaccomputerscience.org/concepts/dsa_datastruct_linked_list). In this case, new elements will be added to the **front** of the linked list, so the head of the list can be used as the top pointer. When head is a **null pointer** (i.e. does not point to anything), the stack is empty. |

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| **How this topic linked to other previous topics? What conclusions can we draw from this topic?** |
| We can arrange data into stacks, an array. Futhermore, this links to linked lists as it can be a dynamic data structure can be contained inside of a stack. |

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| **What are the strengths / applications of this topic? (e.g. accuracy, steps of calculations, time or space complexity, used when …., hardware and software needs, ethical or legal issues, ….etc.)** |
| A strength of using stacks checking for balanced parentheses in an expression, and converting postfix (Reverse Polish Notation) to infix notation and vice versa. Futhermore, it can be used as an undo function. |

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| **What are the limitations / drawbacks of this this topic (e.g. problems, limited accuracy, too many steps, too complex, cannot be used when, hardware requirements, ethical and legal issues, ….. etc.)** |
| There are no key limitations with stacks. |

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| **Write a summary of the topic in 50 words** |
| A stack is an abstract data type that holds an ordered, linear sequence of items. A real-life example of a stack is that you can only take a plate from the top. Therefore, we can use this information to locate data orders as well other operations. |