

# CE205 Data Structures Week-1

## Introduction to Data Structure

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### Contents

<b>1</b>	<b>CE205 Data Structures</b>	<b>1</b>
<b>2</b>	<b>Week-1</b>	<b>1</b>
2.1	Introduction to Data Structures . . . . .	2
<b>3</b>	<b>Week-1 End</b>	<b>3</b>

### List of Figures

### List of Tables

## 1 CE205 Data Structures

## 2 Week-1

Download DOC<sup>1</sup>, SLIDE<sup>2</sup>, PPTX<sup>3</sup>

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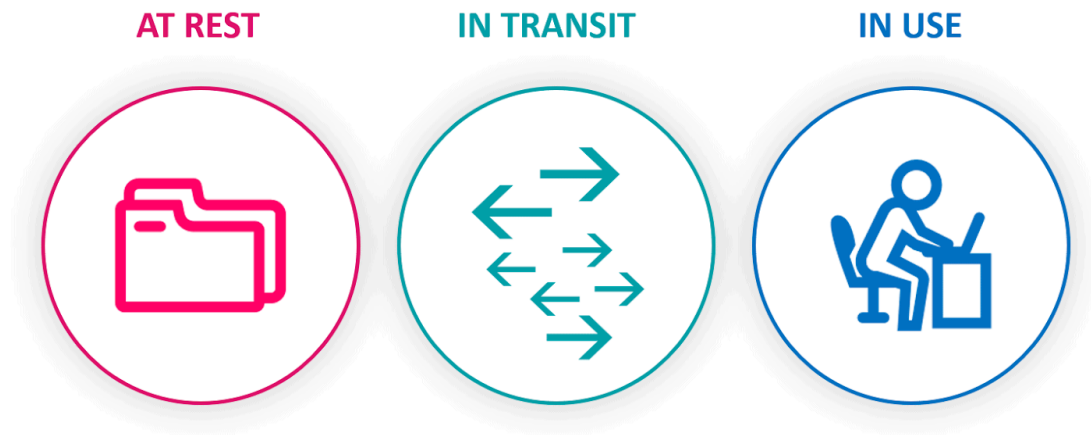
<sup>1</sup>[ce205-week-1-intro.md\\_doc.pdf](#)

<sup>2</sup>[ce205-week-1-intro.md\\_slide.pdf](#)

<sup>3</sup>[ce205-week-1-intro.md\\_slide.pptx](#)

## 2.1 Introduction to Data Structures

### THE THREE STATES OF DATA



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Data-in-use

- Data in use - Wikipedia<sup>4</sup>

Data-in-transit

- Data in transit - Wikipedia<sup>5</sup>

Data-at-rest

- Data at rest - Wikipedia<sup>6</sup>
- 

Performance Analysis

- Data Structures Tutorials - Performance Analysis with examples<sup>7</sup>

Space Complexity

- Data Structures Tutorials - Space Complexity with examples<sup>8</sup>

Time Complexity

- Data Structures Tutorials - Time Complexity with examples<sup>9</sup>
- 

Data and Variables

- C++ Data Types<sup>10</sup>
- 

Linear & Non-Linear Data Structures

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<sup>4</sup>[https://en.wikipedia.org/wiki/Data\\_in\\_use](https://en.wikipedia.org/wiki/Data_in_use)

<sup>5</sup>[https://en.wikipedia.org/wiki/Data\\_in\\_transit](https://en.wikipedia.org/wiki/Data_in_transit)

<sup>6</sup>[https://en.wikipedia.org/wiki/Data\\_at\\_rest](https://en.wikipedia.org/wiki/Data_at_rest)

<sup>7</sup>[http://www.btechsmartclass.com/data\\_structures/performance-analysis.html](http://www.btechsmartclass.com/data_structures/performance-analysis.html)

<sup>8</sup>[http://www.btechsmartclass.com/data\\_structures/space-complexity.html](http://www.btechsmartclass.com/data_structures/space-complexity.html)

<sup>9</sup>[http://www.btechsmartclass.com/data\\_structures/time-complexity.html](http://www.btechsmartclass.com/data_structures/time-complexity.html)

<sup>10</sup>[https://www.tutorialspoint.com/cplusplus/cpp\\_data\\_types.htm](https://www.tutorialspoint.com/cplusplus/cpp_data_types.htm)

- Data Structures Tutorials - Linear and Non-linear types<sup>11</sup>
- Data Structure and Types<sup>12</sup>

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### Implementing Pointer and Objects

- Check CS50 Pointer Notes<sup>13</sup>
- Week 0 - CS50<sup>14</sup>

- 
- ASN.1 / BER TLV / PER TLV
    - <http://lionet.info/asn1c/download.html>
    - GitHub - ucoruh/asn1c-wsl-sample: ASN.1 C WSL and Windows Execution, Debugging and Code Generation Sample<sup>15</sup>

- 
- Sample Standard for ASN.1 Usage
    - [https://www.etsi.org/deliver/etsi\\_ts/125400\\_125499/125413/04.09.00\\_60/ts\\_125413v040900p.pdf](https://www.etsi.org/deliver/etsi_ts/125400_125499/125413/04.09.00_60/ts_125413v040900p.pdf)

- 
- Payment BER TLV Parser Sample
    - TLV Utilities<sup>16</sup>
    - <https://paymentcardtools.com/>
- 

Week-1 End

## 3 Week-1 End

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<sup>11</sup>[http://www.btechsmartclass.com/data\\_structures/linear-non-linear-data-structures.html](http://www.btechsmartclass.com/data_structures/linear-non-linear-data-structures.html)

<sup>12</sup><https://www.programiz.com/dsa/data-structure-types>

<sup>13</sup>[./files/CS50%20Modified.pdf](#)

<sup>14</sup><https://cs50.harvard.edu/college/2021/fall/weeks/0/>

<sup>15</sup><https://github.com/ucoruh/asn1c-wsl-sample>

<sup>16</sup><https://emvlab.org/tlvutils/?data=6F1A840E315041592E5359532E4444463031A5088801025F2D02656E>