Practical 1:  
  
Numpy  
- Creating blank array, with predefined data, with pattern specific  
data  
- Slicing and Updating elements,  
- Shape manipulations  
- Looping over arrays.  
- Reading files in numpy  
- Use numpy vs list for matrix multiplication of 1000 X 1000 array  
and evaluate computing performance.  
For Help:  
<https://www.dataquest.io/m/289-introduction-to-numpy/>  
<https://cloudxlab.com/blog/numpy-pandas-introduction/>  
Pandas  
- Creating data frame  
- Reading files  
- Slicing manipulations  
- Exporting data to files  
- Columns and row manipulations with loops  
- Use pandas for masking data and reading if in Boolean format.  
For Help:  
<https://www.hackerearth.com/practice/machine-learning/data-manipulation->  
visualisation-r-python/tutorial-data-manipulation-numpy-pandas-  
python/tutorial/  
Matplotlib  
- Importing matplotlib  
- Simple line chart  
- Correlation chart  
- Histogram  
- Plotting of Multivariate data  
- Plot Pi Chart  
For Help:  
<https://towardsdatascience.com/data-visualization-using-matplotlib->

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| --- | --- | --- | --- |
| No. | Name | Weight | Symbol |
| 1 | Hydrogen | 1.0079 | H |
| 2 | Helium | 4.0026 | He |
| 3 | Lithium | 6.941 | Li |
| 4 | Beryllium | 9.0122 | Be |
| 5 | Boron | 10.811 | B |
| 6 | Carbon | 12.0107 | C |
| 7 | Nitrogen | 14.0067 | N |
| 8 | Oxygen | 15.9994 | O |
| 9 | Fluorine | 18.9984 | F |
| 10 | Neon | 20.1797 | Ne |

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