

Data Academy HLT

Tasks	GLH
Core Learning - Machine Learning	60 - 120 minutes
Portfolio Task - Machine Learning projects	120 - 240 minutes
Flipped Learning - Deep learning	30 minutes
Enrichment - Netflix's recommendation system and how it works	60 minutes
Technology - Cloud Computing	60 minutes
Wellbeing - Relaxing	60 minutes
Soft Skills - Interpersonal Skills	60 minutes
Employability - Body language	60 minutes

*Times are a rough guideline



Core Learning 1 - Machine Learning Algorithms

Machine Learning algorithms

- Linear Regression
- Logistic Regression
- Decision Tree
- SVM (Support Vector Machine)
- Naive Bayes
- KNN (K- Nearest Neighbours)
- K-Means
- Random Forest

Select one or more choices from the list of common Machine Learning Algorithms, do some investigations and write a short summary.

1. Is it Supervised/ Unsupervised/ Reinforcement learning?
2. What does the algorithm do?
3. In which situations will it be most useful?
4. (Optional) Can you find any examples of where this algorithm has been used?

This task is to help you start revising for your BCS exam What is Machine Learning. The more ML algorithms you research the better prepared you will be for the exam

• Marking Criteria – Machine Learning algorithms

	Pass	Merit	Distinction
• Task	<ul style="list-style-type: none">Writes a short summary of one of the machine learning algorithms	<ul style="list-style-type: none">Writes a summary of all machine learning algorithms	<ul style="list-style-type: none">Completes the optional task of researching an example of where the algorithm is used for all algorithms



Portfolio Tasks -

Portfolio
Projects

From this website select follow and complete the Linear Regression Model

<https://stackabuse.com/linear-regression-in-python-with-scikit-learn/>

Build A Simple Machine Learning Python Program

<https://www.youtube.com/watch?v=Vei12CKWzFs>

How to Analyse and Clean Data, Create an ML Model, and Set Up an API

<https://www.freecodecamp.org/news/data-science-and-machine-learning-project-house-prices/#machinelearningmodel>

Remember to
upload to GitHub





Flipped Learning

Flipped Learning

Use the following resources to support you ahead of next weeks session on the following concepts:

What is the library TensorFlow?

What is the different between ML and AI?

How to train a ANN

Watch YouTube video on Artificial Neural Networks -

<https://www.youtube.com/watch?v=ukzF19rgwfU>



Enrichment

Use the following resources to explain concepts in more detail:

Netflix's recommendation system and how it works -

<https://blogs.mathworks.com/loren/2015/04/22/the-netflix-prize-and-production-machine-learning-systems-an-insider-look/>

Official ML datasets analysis with Python -

<https://scipy-lectures.org/packages/scikit-learn/index.html>



Technology

This week, our focus is on **Cloud Computing**.

Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet (“the cloud”) to offer faster innovation, flexible resources, and economies of scale. You typically pay only for cloud services you use, helping you lower your operating costs, run your infrastructure more efficiently, and scale as a business needs change.

The main benefits cloud computing offers are:

- Reduced costs
- Improved speed
- Increased productivity
- Higher performance
- Reliability

For more information about Cloud Computing, visit the following links:

Microsoft Azure:

<https://azure.microsoft.com/en-us/resources/cloud-computing-dictionary/what-is-cloud-computing/#benefits>

Amazon Web Services (AWS):

<https://www.youtube.com/watch?v=mxT233EdY5c>

Quick overview of cloud computing:

https://www.youtube.com/watch?v=M988_fsOSWo



Wellbeing

This week, our focus is on **Relaxation**.

Exploring relaxation can help you look after yourself when you're feeling stressed or worried. Relaxation might not make what you are stressed or worried about go away. But it can give you a mental break from these feelings and help you refocus.

There are lots of relaxation exercises out there. Many can be done in a short time with no equipment. Have a look at the tips and ideas below to see how relaxation can fit into your daily life.

A basic relaxation exercise to try yourself is:

- Choose a quiet place where you won't be interrupted.
- Do a few gentle stretching exercises to relieve muscular tension.
- Make yourself comfortable, either sitting or lying down.
- Start to breathe slowly and deeply, in a calm and effortless way.
- Gently tense, then relax, each part of your body, starting with your feet and working your way up to your face and head.
- As you focus on each area, think of warmth, heaviness and relaxation.
- Push any distracting thoughts to the back of your mind; imagine them floating away.
- Don't try to relax; simply let go of the tension in your muscles and allow them to become relaxed.

Use the following links to explore relaxation techniques:

<https://www.mind.org.uk/information-support/tips-for-everyday-living/relaxation/relaxation-tips/>

<https://wellbeinginfo.org/self-help/health/relaxation/>

<https://www.helpguide.org/articles/stress/relaxation-techniques-for-stress-relief.htm>



Soft Skills

This week, our focus is **Interpersonal Skills**.

Interpersonal skills are the set of skills we use to interact and communicate with others.

We demonstrate interpersonal skills whenever we engage with people around us, and they determine our ability to build relationships and work with others.

Having strong interpersonal skills can improve your ability to do well in interviews and build productive, long-lasting relationships in your personal and professional life.

To find out more information about developing your interpersonal skills, visit the following links:

<https://www.skillsyouneed.com/interpersonal-skills.html>

<https://resumegenius.com/blog/resume-help/interpersonal-skills>

<https://uk.indeed.com/career-advice/cvs-cover-letters/interpersonal-skills>



Employability

First impressions are not only vital to the success of your interview, they're also nearly impossible to change. And whilst preparing for common interview questions is a key part of nailing the interview, your body language might be saying more than your answers.

Consider doing the following during interview:

- Walk in confidently
- Deliver a firm handshake
- Sit up straight
- Keep eye contact
- Smile
- Think about your hand movements or gestures

Refrain from doing the following during interview:

- Be over confident
- Offer a weaker handshake
- Slouch
- Stare
- Fidget

For more information about body language during an interview, visit the following links:

<https://www.reed.co.uk/career-advice/body-language-interview-dos-and-donts/>

<https://www.totaljobs.com/advice/interview-body-language>

<https://www.indeed.com/career-advice/interviewing/body-language-during-interview>