

Tech Career Talks



Create an AI model
in 30 minutes
with Python



Online



Monday 25 November



12:30pm (30 mins)



Free

Hosted by:
Sally Sam



Who are LearnTech?



LearnTech are a tech-specialist Independent Training Provider



We are a regulated provider, rated 'Good' by Ofsted



We have been training remotely since 2017, implementing a range of cutting-edge technologies to create engaging learning environments

Who are LearnTech?

We work with a range of employers across the UK, large and small, to deliver specialist tech training in areas such as software development, networking, cyber security and data analysis



Free* Tech Courses (FTCs)



★★★★★ Excellent
Employer reviews

★★★★★ Excellent
Apprentice reviews

98.4%
Pass Rate








It is your choice if you would like to code along.

I would love to hear from you!

At any time, please share comments, questions or feedback in the chat.



For example:

-  “What do you mean by... ?”
-  “Can you repeat... ?”
-  “How did you... ?”
-  “Why is... ?”
-  “Where is... ?”

What is Artificial Intelligence (AI)?



The Cambridge Dictionary defines AI as:

“the use or study of computer systems or machines that have some of the qualities that the human brain has, such as the ability to

- **interpret and produce language** in a way that seems human,
- **recognize or create images,**
- **solve problems,**
- and **learn from data** supplied to them”



An AI tool can mimic the abilities of the human brain.

Artificial intelligence in our day

Artificial Intelligence: A Part of Our Everyday Life

Using Mobile Phone

People can't think even a day without their mobile phones. According to research, 46% of Americans check their phone before getting out of bed. People unlock their mobile with a face ID that is a part of AI.



Social Media

AI influences the contents we see on social media according to your tastes, preference and history from your online activities. AI curates the information and makes your feed more relevant for you.

Household Stuffs

To switch off or switch on the light, fan, AC, etc., AI makes it comfortable by making a smart home based on human presence.



Navigation Apps

AI helps with navigation, as apps such as Google Maps look over the traffic flow. It tells you how long it will take to reach your destination and suggests the fastest route for your journey with the help of AI.



Digital Assistant

Digital assistants such as Siri, Alexa, Google Assistant, etc., are also the most popular use of AI. You can utilize these apps to perform your task by taking your voice command and translate it into operation.



Spam Filter

Email also employs AI, dividing your inbox in different categories like primary, forums, updates, promotion, spam, etc., to keep it risk free. AI assists you with automated responses by using just one button.



Text Editor

Auto-correcting tools enable you to check for grammatical errors, spelling mistakes and plagiarism. AI uses machine learning to identify incorrect language and give suggestions to improve.



E-Payment

Banks operate with AI to simplify the payment system. AI identifies fraud by analyzing credit card user's using patterns. Following the history and identifies any abnormal transaction from your card, to instantly alert you.



From waking up with the alarm to going to bed with our favorite music streaming service, AI is lurking from the background in every sector. Though everything has good and bad impacts, carrying out positivity is the best we can do so far.

<https://disruptglobal.com/>

Examples of AI uses

 Speech recognition

 Text summarisation

 Facial recognition

 Self-driving cars

 Medical diagnosis

 Spam email detection

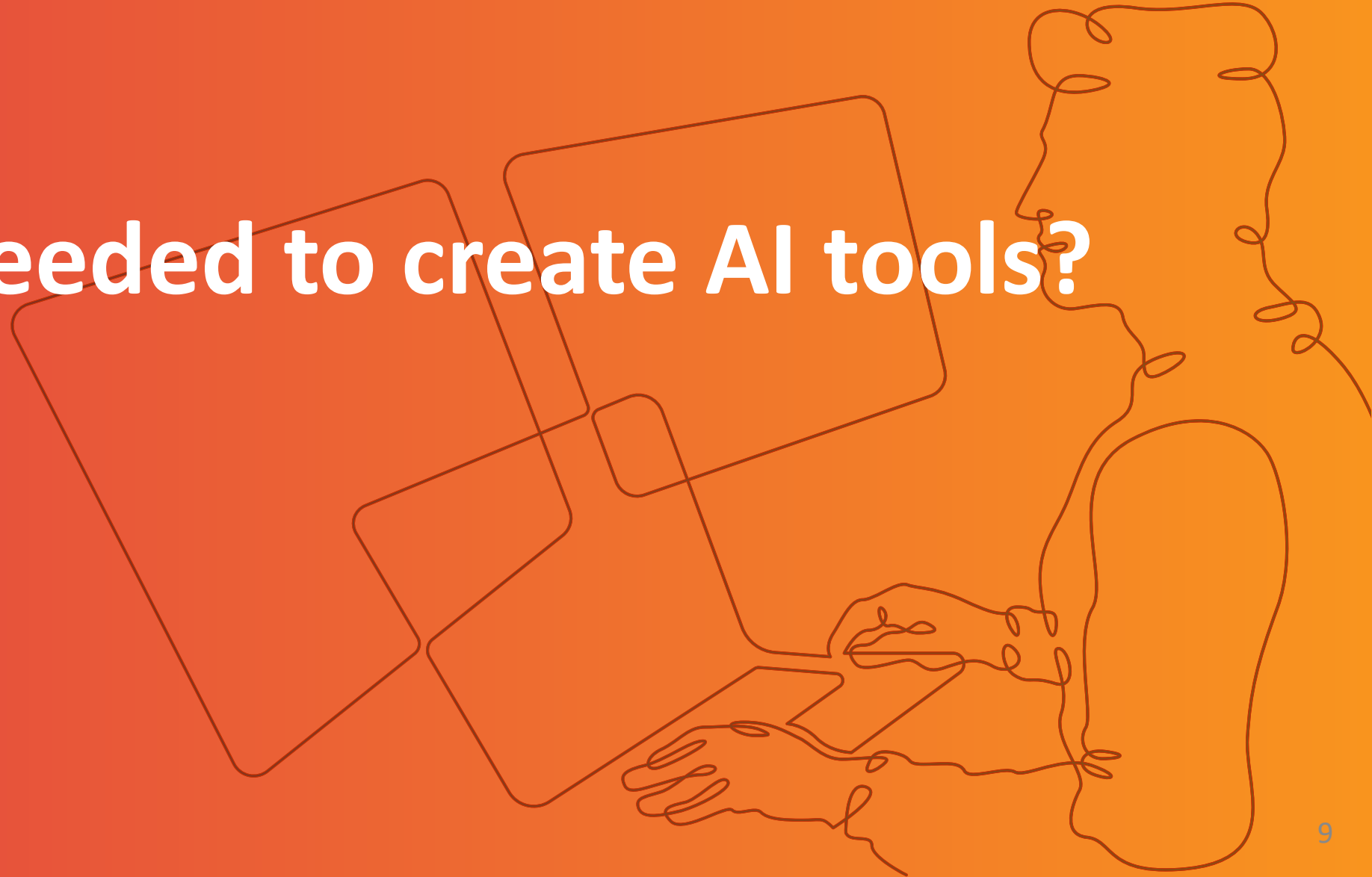
 Customer segmentation

 Weather forecast

 Sales forecast

 Robotic item pickers

What is needed to create AI tools?



Components of an AI tool

Today, we will create a baseline AI model to diagnose breast cancer by using:



AI use
case

e.g.
**Breast
cancer
diagnosis**



Skilled team

e.g.
**Clinicians, patients,
AI Data Specialist,
Project Manager,
Data Engineer, etc.**



Data

e.g.
**Breast
cell
image
data**



AI
algorithms

e.g.
**Linear
Support
Vector
Machine**



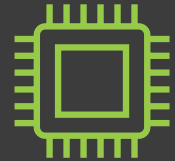
Programming
languages

e.g.
Python



Software

e.g.
**Kaggle
Notebooks,
Git,
VS Code**



Hardware

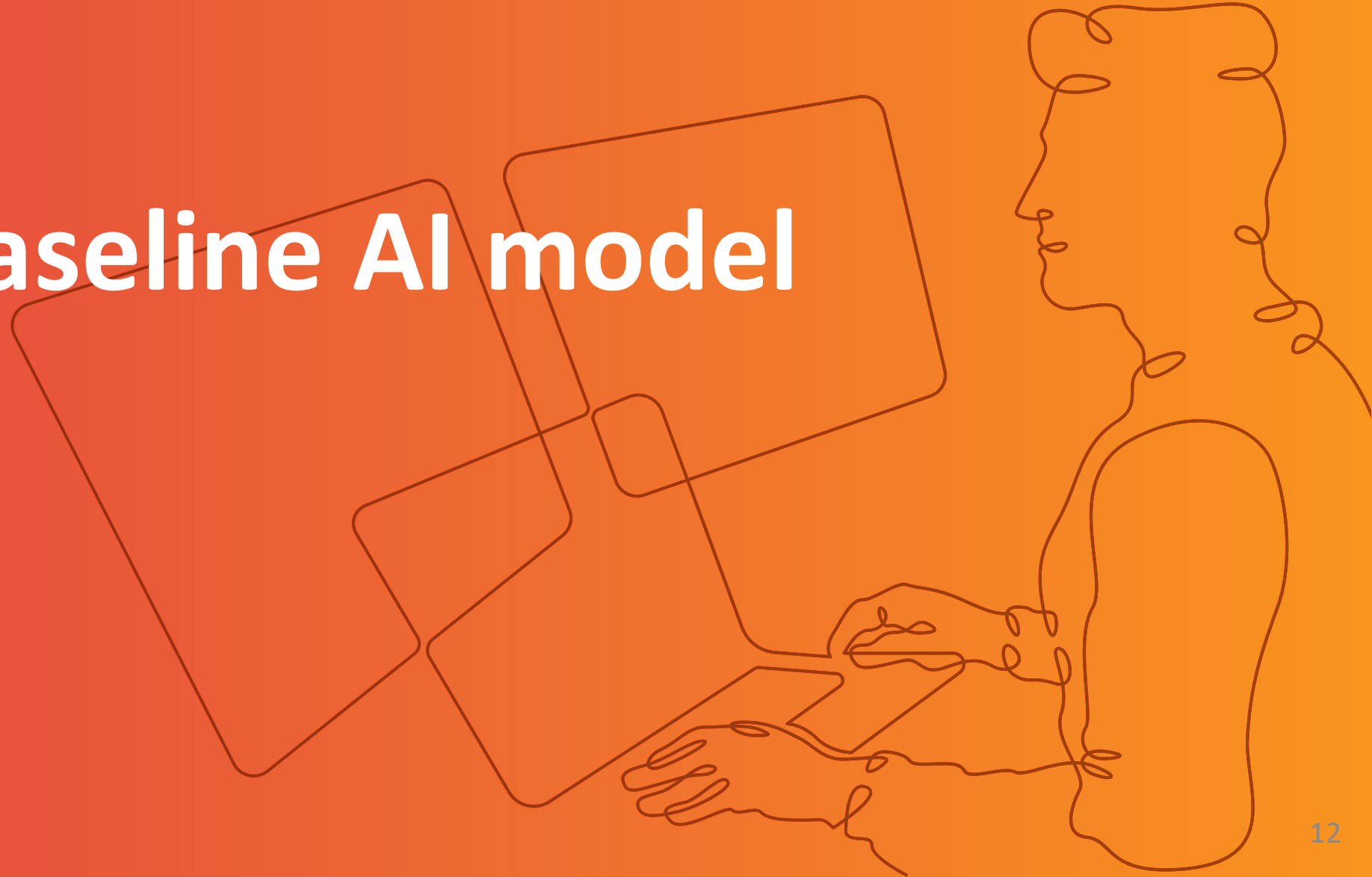
e.g.
**Laptop,
Kaggle
servers,
Cloud servers**

0. Exploratory data analysis

Understand your data and confirm this with subject matter experts!

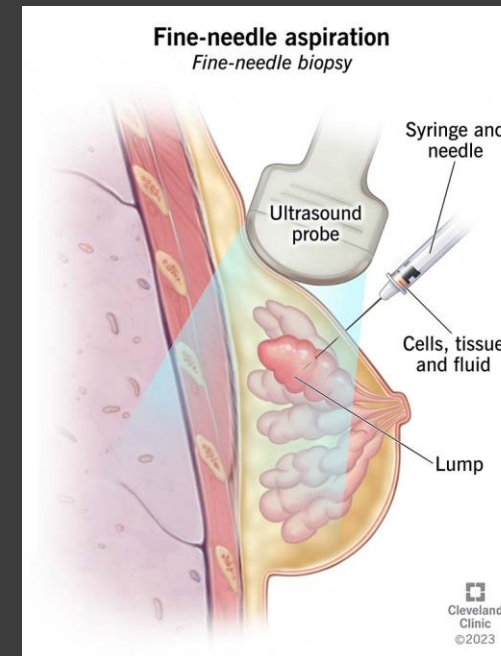
1. Train/*validation*/test split of data:
Hold out some data and pretend it is the future
2. Feature manipulation (data manipulation):
Make sure your data works for your specific algorithm and problem
3. Train using algorithm (mathematical model):
Make sure the algorithm provides the “best” performing model
4. Evaluate model on test data:
Quantify or qualitatively explain the performance of the model
5. Explain how the model works

Create baseline AI model

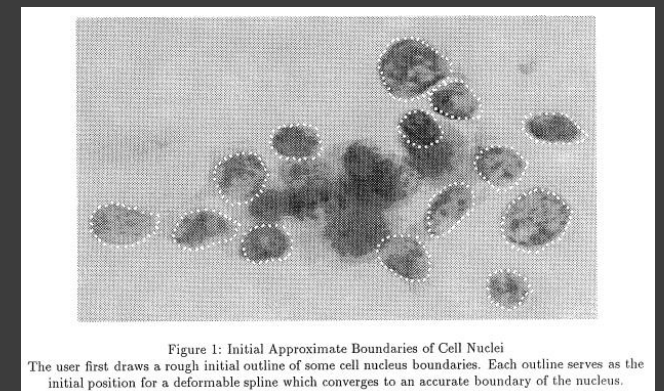


Resources: https://github.com/LearnTech-ssam/techtalk_aimodel

- A colleague would like AI to automatically diagnose breast cancer from images of a breast mass.
- They already have some data that you can work with.



<https://my.clevelandclinic.org/health/diagnostics/17872-fine-needle-aspiration-fna>



<https://doi.org/10.24432/C5DW2B>

mean concave points	mean symmetry	mean fractal dimension	...
0.14710	0.2419	0.07871	...
0.07017	0.1812	0.05667	...
0.12790	0.2069	0.05999	...

If you are coding along

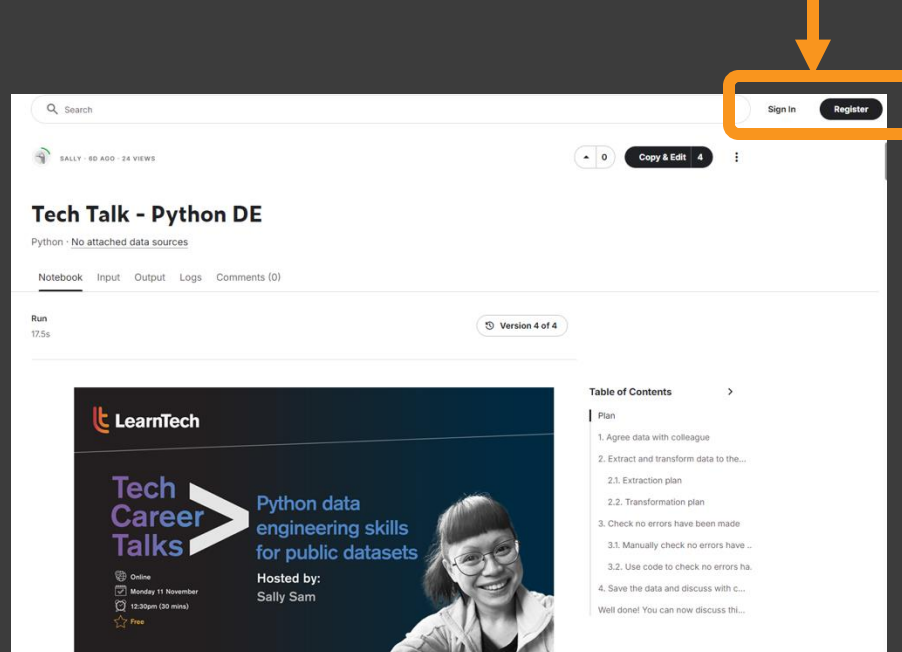


If you are coding along: sign into Kaggle

Resources: https://github.com/LearnTech-ssam/techtalk_aimodel

Kaggle: <https://www.kaggle.com/code>

- Sign in or create a free account using an email address



If you are coding along: create new notebook

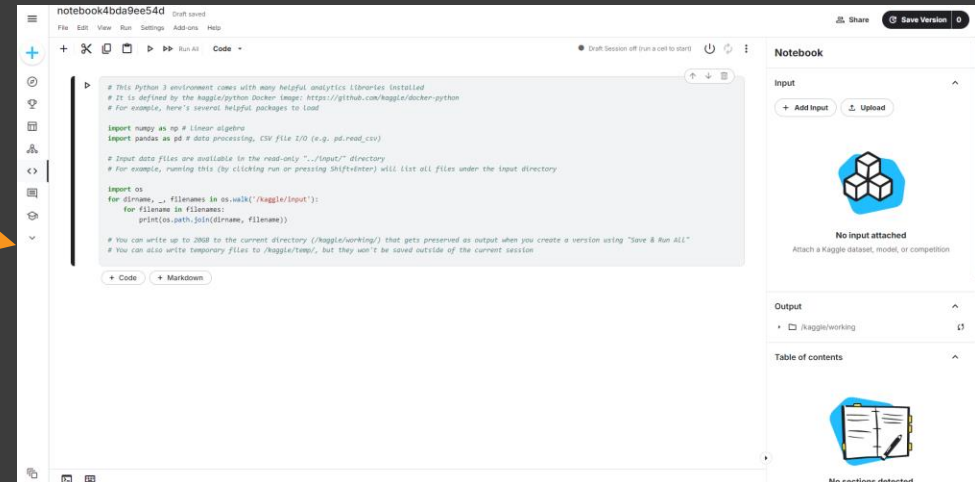
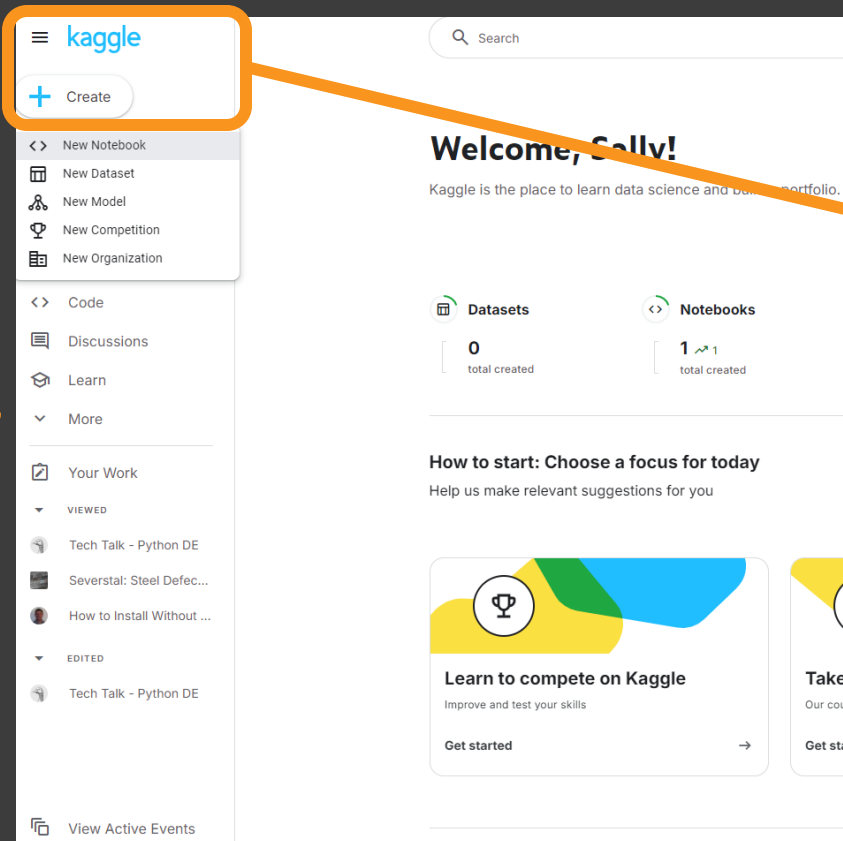
Resources: https://github.com/LearnTech-ssam/techtalk_aimodel

Kaggle: <https://www.kaggle.com/code>

Click
"+ Create"

then

click
"New
Notebook"



If you want to follow along



If you want to follow along

Resources: https://github.com/LearnTech-ssam/techtalk_aimodel

Materials

- [images](#) contains images shown in this repository.
- [README.md](#) is the file you are currently reading.
- [Tech_Talk_AI_Model \(subset of code only\).html](#) is a html version of the .ipynb file and is screen reader compatible. You will need to download the file and open it in a browser.
- [Tech_Talk_AI_Model \(subset of code only\).ipynb](#) contains Python code to create an AI model without explanation of the steps.
- [Tech_Talk_AI_Model.html](#) is a html version of the .ipynb file and is screen reader compatible. You will need to download the file and open it in a browser.
- [Tech_Talk_AI_Model.ipynb](#) contains Python code to create an AI model with explanation of the steps.

“In” are code cells that have run.

“Out” are the outputs of any code cells.

The number in square brackets, e.g. [4], is the order the cell was run.

2.3. Load the data

The data can be loaded from the Python library sklearn.

- `return_X_y=True` just returns the image data and the cancer classification of malignant (represented as 0) or benign (represented as 1)
- `as_frame=True` returns both datasets as a pandas DataFrame and Series

Source: https://scikit-learn.org/stable/modules/generated/sklearn.datasets.load_breast_cancer.html

In [4]:

```
data = load_breast_cancer(return_X_y=True, as_frame=True)
```

In [5]:

```
print(f"data has {type(data)} and there are {len(data)} items")
```

data has <class 'tuple'> and there are 2 items

Let's code!



0. Exploratory data analysis

Understand your data and confirm this with subject matter experts!





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What next?



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-  Free subject to eligibility



**Web Design
& Development**



**Cyber
Security**



**Data
Analysis**



**Coding
Practices**

Free Tech Courses

Eligibility

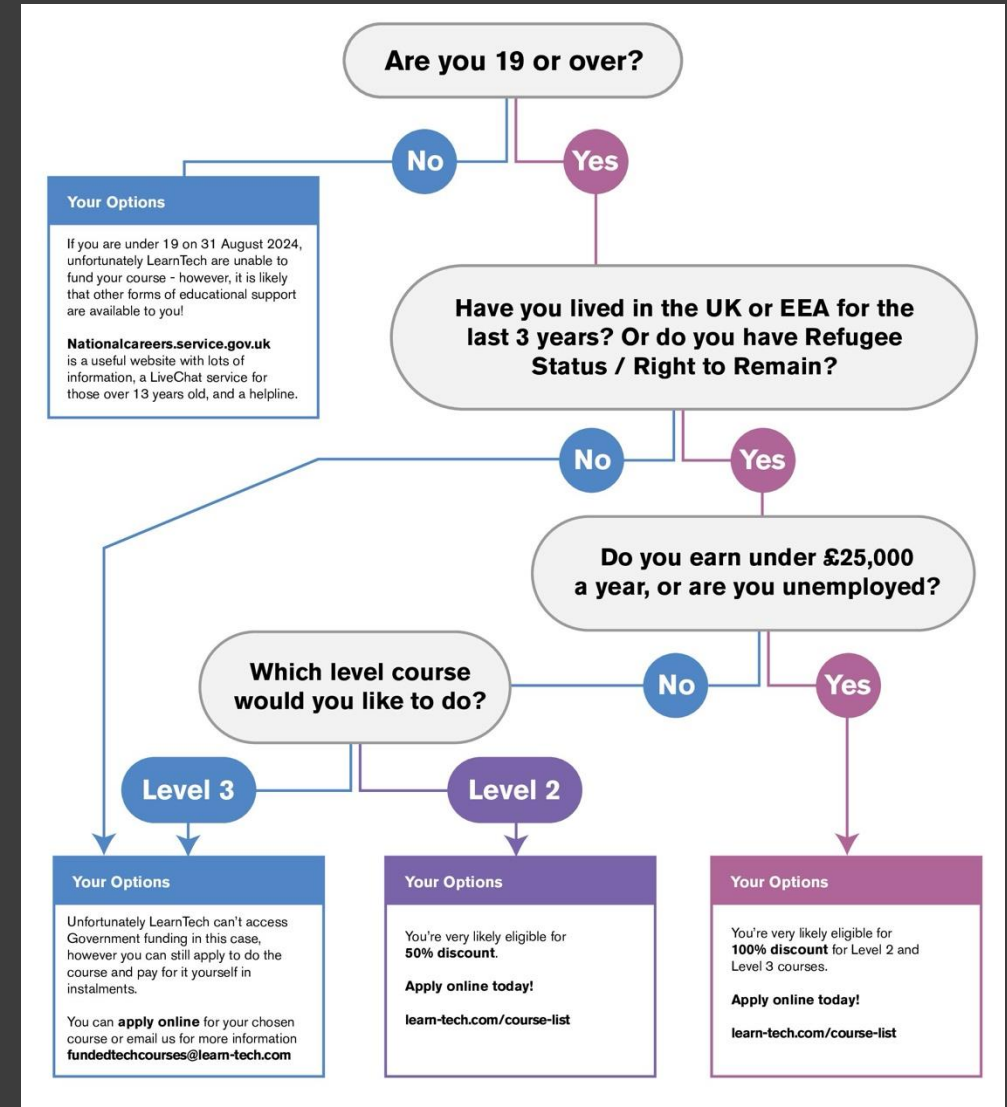
Step 1 – Check Your Postcode Eligibility

Please enter your postcode below to check if your area is eligible for funding...

If you live in London, the Combined Authorities of Greater Manchester, West Midlands, South or West Yorkshire, unfortunately we are currently unable to access government funding for you to do this course for free.

See the full list of courses here:

[Course List - LearnTech \(learn-tech.com\)](https://learn-tech.com/course-list)



Previous Tech Career Talk

Last session was...



The poster features the LearnTech logo at the top left. Below it, the text 'Tech Career Talks' is displayed in a large, bold, blue font, followed by a large white right-pointing arrow. To the right of the arrow, the text 'Python data engineering skills for public datasets' is written in a smaller blue font. Below this, it says 'Hosted by: Sally Sam'. On the right side of the poster is a black and white photo of a smiling woman with glasses and a ponytail. In the bottom left corner, there are four icons with corresponding text: a globe icon for 'Online', a calendar icon for 'Monday 11 November', a clock icon for '12:30pm (30 mins)', and a star icon for 'Free'.

LearnTech

Tech Career Talks > Python data engineering skills for public datasets

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Sally Sam

Online
Monday 11 November
12:30pm (30 mins)
Free

For more details and recordings visit
learn-tech.com/news-events

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Recordings are posted on socials and our website

If you would like more information on data engineering or AI, you can email:

Sally Sam

Technical Trainer Mentor

s.sam@learn-tech.com

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