

Tutorial 2: Machine Learning

Week 4

February 2026

1 Class Questions

1. What is machine learning?
2. How is machine learning different to regular computer programming?
3. Can you give examples and the kind of problems machine learning can solve?
4. How do you collect data for machine learning? What kind of data you should look for?

2 Machine Learning for Business Analytics

You own a street food business called *SpiceStreet* at a local market. You collected 1000's of reviews of it from various online platforms. The reviews are in three formats (see tables 1, 2, and 3). You want to know what score the reviews from Credit would have. How could you use machine learning to score the reviews?

1. What would you do first *before* machine learning?
2. Which type of machine learning would you use, supervised or unsupervised? Is your problem descriptive, predictive, or prescriptive? Is the kind of machine learning you need classification, regression, or clustering?
3. What would your features be? Would you have to do any feature crafting?
4. Conduct a feature analysis. Are the features useful valid, stable and safe?
5. How would you evaluate whether your model is performing well?
6. What other questions could you use this data to answer?
7. You find that your average review score is 4.2/5. You know that your rating is getting better every month since you opened. You would like to host a party for your staff when you reach a review score of 4.5. How can you use machine learning to work out when this may be?

Table: TripReview

User	Location	Date	Score	Value	Service	Food	Type	Review
Laura	Edinburgh	Nov-25	5	5	5	5	family	Can't comment on authenticity, but it was really tasty , especially given the amount of food produced in a small stall. Loved the samosas. Lovely owners.
Gordon47	The moon	Dec-25	4	5	4	4	couple	Loved the flavours and textures of the food. Delicious and a great change to the usual lunch.
CammyB	EH45 8AN	Oct-25	1	1	3	3	solo	Waited ages, chaotic service. Friendly staff but tiny portions and overpriced. Would not recommend.

Table: Credit

User	Date	Review
JessieWheel	01 Nov 2025	My family went for a vegetarian lunch. Really reasonably priced, friendly owner, and great quality . We will be back.

Table: FoodMood

User	Date	Score	Review
Ben	01/10/2025	8	Arrived just before closing but still plenty of options. Everything was delicious and staff even gave us masala chai. Will return.
Betterfood	24/10/2025	1	Terrible place. I own the shop next door which is better and cheaper. Come to me instead.

3 Machine Learning for Politics

You are a journalist, and there is an election coming up. You want to collect social media data on politicians, public commentators, and the media discussing the election. You have the names of all the people you want to collect from, but you don't know which political parties they support.

1. Where could you collect the social media data from? Is it ethical to do this?
2. Where could you find out what political parties they support?
3. How might you use machine learning to help with this?

4 Machine Learning for Machine Learning

Last week, you were tasked with creating a research question & hypothesis on investigating benefits and harms of generative AI on a specific domain, through an experiment / big data analysis.

How could you use machine learning as part of your methodology to answer this question? *Work in groups. If limited in time, post the answer in piazza for instructor feedback.*