Label the Blueprint - Understanding AI Systems

How an Email Spam Filter AI Works

Every day, millions of emails are sent and received. Some of these are useful, but many are unwanted spam. An AI system is often used to filter out spam messages before they reach your inbox.

The system begins when an email arrives. The text of the email, the sender's address, and any links are collected by the system. These details are the raw information that the AI will use.

Next, the system applies a set of steps to analyze the email. It looks for patterns, such as suspicious words, phrases, or unusual links. The system compares these details to what it has learned in the past about spam and non-spam messages.

At the core of the system is something that has already been trained: a decision-making component that uses previous data to "know" what spam usually looks like. This allows the system to make quick judgments about new emails.

Based on this analysis, the system decides what to do with the email. If it predicts that the message is spam, the email is placed in the spam folder. If it predicts the message is safe, the email is delivered to the main inbox.

Finally, the system learns from user behavior. If you mark a spam message as "Not Spam" or move an email into the spam folder yourself, this information is sent back to the system. These signals help improve the system over time so it can make better decisions in the future.

Label the Blueprint - Match each step (left column) with the correct label (**Input, Processing, Model, Output, Feedback**) from the right column. Then, in the blank lines, write 1-2 sentences explaining your choice.

Step	Label (Fill in)	Explain
1. The system collects the email text, sender address, and links.		
2. The system checks for patterns such as suspicious words or unusual links.		
3. A trained component makes predictions about whether the email is spam.		
4. The system moves the email to spam or to the inbox.		
5. User corrections (marking "Not Spam" or "Spam") are sent back to the system.		

Reflection Question - Why is feedback especially important for an AI spam filter? What might happen if the system never received feedback?