

# Gen-AI Hands-On

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| Task       | Model   | Result<br>(Success /<br>Failure) | What Happened?   | Reason  |
|------------|---------|----------------------------------|--|---|
| Generation | BERT    | Failure                          | The model kept printing dots and random symbols instead of continuing the sentence properly.                 | BERT is an encoder-only model and is not meant for generating text one word at a time, so it cannot continue sentences correctly. |
|            | RoBERTa | Failure                          | The model repeated the same prompt and did not create any new meaningful text.                               | RoBERTa is also an encoder-only model and does not have a decoder to generate new text sequences.                                 |
|            | BART    | Partial Success                  | The model produced a long continuation, but the output was confusing, repetitive, and sometimes meaningless. | BART supports text generation, but the base version is not trained for open-ended generation, so the output becomes unstable.     |
| Fill-Mask  | BERT    | Success                          | The model correctly predicted missing words such as “create”, “generate”, and “produce”.                     | BERT is trained using Masked Language Modeling, so predicting missing words is what it does best.                                 |

|                    |         |                 |   |   |
|--------------------|---------|-----------------|---|---|
|                    | RoBERTa | Success         | After using the correct <mask> token, the model predicted suitable words like “generate” and “create”.    | RoBERTa is highly optimized for masked token prediction and performs very well on this task.                  |
|                    | BART    | Partial Failure | The model suggested reasonable words like “create” and “help”, but the confidence scores were much lower. | BART is trained as a denoising autoencoder, not a pure masked language model, so it is weaker at this task.   |
| Question Answering | BERT    | Partial Failure | The model returned only a small fragment “, and deepfakes” with very low confidence.                      | The base BERT model is not fine-tuned for question answering, so it cannot properly locate answer spans.      |
|                    | RoBERTa | Failure         | The model gave the wrong answer “Generative” which did not match the question.                            | RoBERTa base is not trained for extractive QA and cannot reliably select the correct answer from the passage. |
|                    | BART    | Failure         | The model returned only a comma as the answer, which is meaningless.                                      | BART is mainly a generative model and is not suitable for extractive question answering without fine-tuning.  |