

# LLM-based Approach - Prompts used

## Zero-shot Learning

### Code-only

You will be provided with a {lang} source code. Please determine if the source code is generated by Artificial intelligence (AI) models (i.e. language models) or human. If the code is generated by human, output 1. If the code is generated by AI, output 0. Return the label only in the output.

Determine whether this code is generated by human or AI and return the label.

Code: {code}

### AST-only

You will be provided with a {lang} abstract syntax tree (AST). Please determine if the source code of the given AST is generated by Artificial intelligence (AI) models (i.e. language models) or human. If the code is generated by human, output 1. If the code is generated by AI, output 0. Return the label only in the output.

Determine whether the source code is generated by human or AI and return the label.

AST: {AST}

### Code+AST

You will be provided with a {lang} source code and its abstract syntax tree (AST). Please determine if the source code is generated by Artificial intelligence (AI) models (i.e. language models) or human. Take both source code and AST into account when making decisions. If the code is generated by human, output 1. If the code is generated by AI, output 0. Return the label only in the output.

Determine whether the source code is generated by human or AI and return the label.

Code: {code}

AST: {AST}

## In-context Learning

### Code-only

You will be provided with a {lang} source code. Please determine if the code snippet is generated by Artificial intelligence (AI) models (i.e. language models) or human. If the code is generated by human, output 1. If the code is generated by AI, output 0. A few example source code along with their corresponding labels are also provided. Return only the label in the output.

Input: {Code} -> Output: 1

Input: {Code} -> Output: 1

Input: {Code} -> Output: 0

Input: {Code} -> Output: 0

Input: {Code} -> Output:

### AST-only

You will be provided with a {lang} abstract syntax tree (AST). Please determine if the source code of the given AST is generated by Artificial intelligence (AI) models (i.e. language models) or human. If the code is generated by human, output 1. If the code is generated by AI, output 0. A few example source code along with their corresponding labels are also provided. Return only the label in the output.

Input: {AST} -> Output: 1

Input: {AST} -> Output: 1

Input: {AST} -> Output: 0

Input: {AST} -> Output: 0

Input: {AST} -> Output:

### Code+AST

You will be provided with a {lang} source code and its abstract syntax tree (AST). Please determine if the source code is generated by Artificial intelligence (AI) models (i.e. language models) or human. If the code is generated by human, output 1. If the code is generated by AI, output 0. A few example source code along with their corresponding labels are also provided. Return only the label in the output.

Input: {Code / AST} -> Output: 1

Input: {Code / AST} -> Output: 1

Input: {Code / AST} -> Output: 0

Input: {Code / AST} -> Output: 0

Input: {Code / AST} -> Output:

## **Fine-tuning**

### **Code-only**

You will be provided with a {lang} source code. Please determine if the source code is generated by Artificial intelligence (AI) models (i.e. language models) or human. If the code is generated by human, output 1. If the code is generated by AI, output 0. Return the label only in the output.

Determine whether this code is generated by human or AI and return the label.

Code: {code}

### **AST-only**

You will be provided with a {lang} abstract syntax tree (AST). Please determine if the source code of the given AST is generated by Artificial intelligence (AI) models (i.e. language models) or human. If the code is generated by human, output 1. If the code is generated by AI, output 0. Return the label only in the output.

Determine whether the source code is generated by human or AI and return the label.

AST: {AST}

### **Code+AST**

You will be provided with a {lang} source code and its abstract syntax tree (AST). Please determine if the source code is generated by Artificial intelligence (AI) models (i.e. language models) or human. Take both source code and AST into account when making decisions. If the code is generated by human, output 1. If the code is generated by AI, output 0. Return the label only in the output.

Determine whether the source code is generated by human or AI and return the label.

Code: {code}

AST: {AST}