

Step I: Type Inference Location Extraction (TILE) Algorithm

Source Code

```
1 public SimpleDateFormat (String pattern) {  
2     this (  
3         pattern,  
4         Locale.getDefault (Locale.Category.FORMAT)  
5     );  
6 }
```

Annotated Code

```
1 public SimpleDateFormat ( [blank] .String pattern) {  
2     [blank] .SimpleDateFormat (  
3         pattern,  
4         [blank] .Locale.getDefault (Locale.Category.FORMAT)  
5     );  
6 }
```

TILE

java.text

java.util

java.lang

Step II: Training Data Prep. for Infilling Language Model (ILM)

ILM Input public SimpleDateFormat ([blank] .String pattern) { [blank] .SimpleDateFormat ... Locale.Category.FORMAT)); }

ILM Target java.lang [a-sep] java.text [a-sep] java.util [a-sep]

Step III: FQN Resolution with ILM Framework

Given code

Predicting ↓

ILM Input

**Output
with FQNs**

Causal
Language
Model (CLM)

**ILM
Target**

Training ↑

ILM Input
[sep]

ILM Target