



Associating Natural Language Comment and Source Code Entities

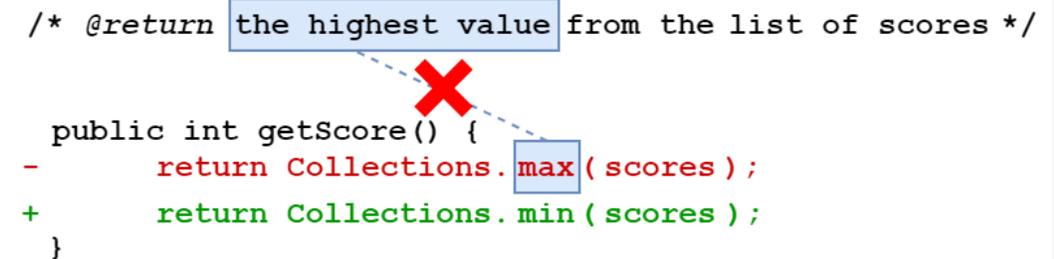
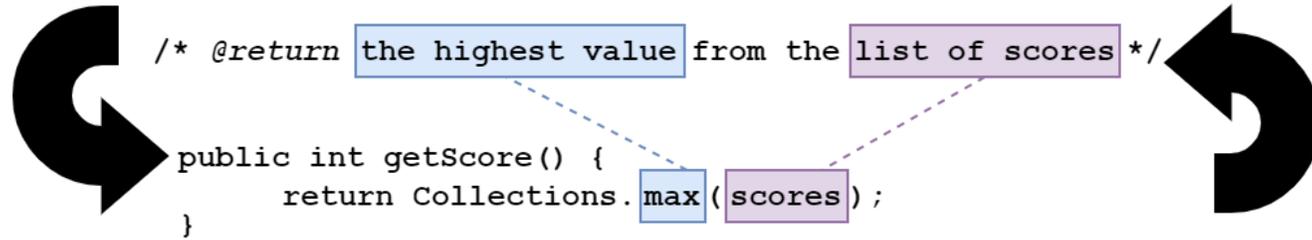
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Motivation: Learning to relate comment and code elements is critical to automated systems for generating code and comments and detecting inconsistent code and comments.

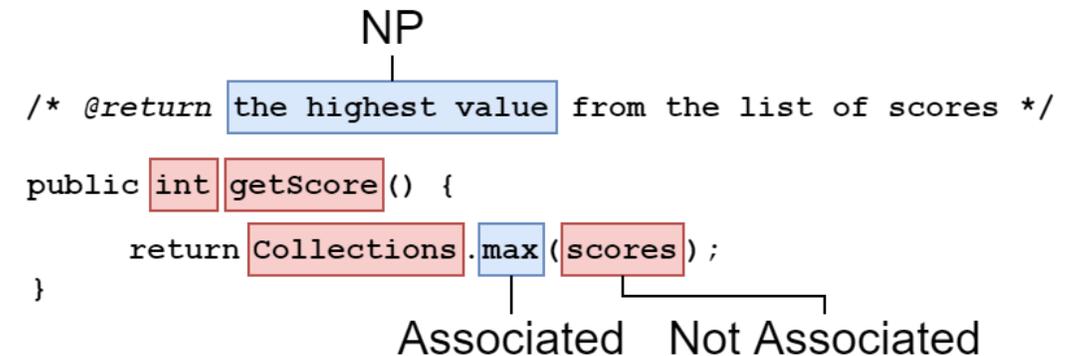
Code generation

Comment generation

Inconsistency detection



Task: Given a noun phrase (NP) in a comment, we classify the relationship between the NP and each candidate code token in the corresponding method as either associated or not associated.





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Challenge #1: Obtaining labeled data

Noisy supervision: Mining simultaneous code/comment updates from GitHub commits



```
- /* @return the highest value from the list of scores */  
+ /* @return the lowest value from the list of scores */  
public int getScore() {  
-     return Collections.max(scores);  
+     return Collections.min(scores);  
}
```



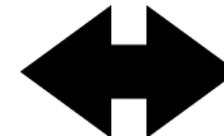
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Challenge #2: Reasoning across two distinct language representations

Salient features: Capturing characteristics of code, comments, and the relationship between them

Natural Language



Source Code