

An Introduction to Algorithms in L^AT_EX

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1 Introduction

```
 $K \leftarrow \emptyset$   
for each mutant do  
  Create tables in database for mutant  
  for each sqlInsertStatement in testSuite do  
    originalResult  $\leftarrow$  Pre-computed result of insert with non-mutant  
    mutantResult  $\leftarrow$  executeWithDBMS(sqlInsertStatement)  
    if originalResult  $\neq$  mutantResult then  
       $K \leftarrow K \cup \text{mutant}$   
    end if  
  end for  
  Remove tables in database for mutant  
end for
```

Figure 1: Kapfhammer et al.’s mutation analysis algorithm, referred to as the “Original” approach in this paper

▷ 1. Meta-mutant creation

for each *mutant* **do**

 Prefix names of tables in *mutant* with unique mutant ID

end for

Create tables in database for all *mutants*

▷ 2. Mutant evaluation

$K \leftarrow \emptyset$

for each *mutant* **do**

killed \leftarrow false

for each *sqlInsertStatement* **in** *testSuite* **do**

sqlInsertStatement' \leftarrow *sqlInsertStatement* modified to use unique mutant ID of *mutant* for table names

originalResult \leftarrow Pre-computed result of insert with non-mutant

mutantResult \leftarrow executeWithDBMS(*sqlInsertStatement*)

if *originalResult* \neq *mutantResult* **then**

$K \leftarrow K \cup \text{mutant}$

end if

end for

end for

▷ 3. Clean up

Remove tables in database for all mutants

Figure 2: “Full Schemata” mutation analysis algorithm

Can you create your own \LaTeX document to write the psuedo code for another algorithm in the *Efficient Mutation Analysis of Relational Database Structure Using Mutant Schemata and Parallelisation* paper?