

# Lab 2 – Maier Bogdan

Git repo: <https://github.com/bogdanmaier49/Formal-Languages-and-Compiler-Design/tree/lab2>

Description:

The Symbol Table is implemented as a Hash Table. Each position from the hash table being an array. Each array has unique elements.

Methods:

```
public int add (String value)
```

Will add in the table the symbol given as a parameter and returns the position where the symbol was added. If the symbol already exists the method will simply return its position.

Complexity:  $3 \cdot O(N)$

```
public int find (String value)
```

Searches in the table if a given symbol exists and returns its position. If the symbol does not exist the method will return -1.

Complexity:  $2 \cdot O(N)$

```
public String[] get (int id)
```

The method will return all symbols from a given position. If no symbols are present at the given position the method will return null.

Complexity:  $O(1)$

```
private int hash (String val)
```

Method used for calculating the hash based on a given value. The hash value of a symbol will be the reminder of the sum of all ascii characters divided by the symbol table size.

Complexity:  $O(N)$

```
public String toString ()
```

Will return the symbol table as a nicely formatted string.

Complexity:  $O(N^2)$