

# Automata Formal Language and Logic

## Assignment 2

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### RegEx using Python

$L = \{a^n b^m | n, m \geq 1, \text{product}(n, m) \geq 3\}$

RegEx:  $aa*bbbb* + aaa*bbb* + aaaa*bb*$

Code:

String Acceptance:

```
import re
```

```
txt= "aa*bbbb* + aaa*bbb* + aaaa*bb*"
```

```
x= re.search("^aa.*b",txt)
```

```
if x:
    print("There is a match.")
```

```
else:
    print("There is no match.")
```

```
Python 3.10.0 (v3.10.0:b494f5935c, Oct 4 2021, 14:59:19) [Clang 12.0.5 (clang-1205.0.22.11)] on darwin
Type "help", "copyright", "credits" or "license()" for more information.
```

```
==== RESTART: /Users/vanshikagoel/Desktop/AFL/Assignments/Assignment 2/re.py ====
There is a match.
```

```
import re
```

```
txt= "aa*bbbb* + aaa*bbb* + aaaa*bb*"
```

```
x= re.search("^a.*b|",txt)
```

```
if x:
    print("There is a match.")
```

```
else:
    print("There is no match.")
```

```
Python 3.10.0 (v3.10.0:b494f5935c, Oct 4 2021, 14:59:19) [Clang 12.0.5 (clang-1205.0.22.11)] on darwin
Type "help", "copyright", "credits" or "license()" for more information.
```

```
==== RESTART: /Users/vanshikagoel/Desktop/AFL/Assignments/Assignment 2/re.py ====
There is a match.
```

String Rejection:

```
import re
txt= "aa*bbbb* + aaa*bbb* + aaaa*bb*"
```

```
x= re.search("^b",txt)
```

```
if x:
    print("There is a match.")
else:
    print("There is no match.")
```

```
Python 3.10.0 (v3.10.0:b494f5935c, Oct 4 2021, 14:59:19) [Clang 12.0.5 (clang-1205.0.22.11)] on darwin
Type "help", "copyright", "credits" or "license()" for more information.
```

```
==== RESTART: /Users/vanshikagoel/Desktop/AFL/Assignments/Assignment 2/re.py ====
There is no match.
```

```
import re
txt= "aa*bbbb* + aaa*bbb* + aaaa*bb*"
```

```
x= re.search("^b.*b",txt)
```

```
if x:
    print("There is a match.")
else:
    print("There is no match.")
```

```
Python 3.10.0 (v3.10.0:b494f5935c, Oct 4 2021, 14:59:19) [Clang 12.0.5 (clang-1205.0.22.11)] on darwin
Type "help", "copyright", "credits" or "license()" for more information.
```

```
==== RESTART: /Users/vanshikagoel/Desktop/AFL/Assignments/Assignment 2/re.py ====
There is no match.
```