9. Voluntary problem set: Context-free grammars

These problems are completely **voluntary** (no bonus points given, either) that one may solve, for instance, before the exam to practise the constructions.

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Exercise description My submissions **2 / 50**

Chomsky normal form for a grammar

Consider the context-free grammar:

```
S -> Tbb
T -> aTb | V
V -> aU | bU
U -> aW | bW
W -> a | b
```

Give a context-free grammar *in Chomsky normal form* that generates the same language.

Enter the grammar in the space below, one production on each line. Use this syntax:

- production: variable -> string1 | string2 ... | stringn
- variables: capital letters A,B,...,Z
- terminals: lower case letters a,b,...,z and numbers 0,1,...,9
- empty string: _ (the underscore symbol)
- start symbol: the first variable in the grammar

For instance, the grammar

```
A -> aAa | B
B -> bB | _
```

generates the language $\{a^n b^k a^n \mid n \geq 0 \text{ and } k \geq 0\}$.

Your solution:

Submit!

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Earned points

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Exercise info

Exercise category
Voluntary exercises

Your submissions
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Deadline
Sat, 31 Dec 2022 23:59:00 +0200

Total number of submitters
16

Previous activity
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