Activity: Syntax-based testing (Grammar)

(no submission)

**Purpose:** Understand the basic concept of syntax-based testing (focus on Grammar-based mutation)

**Instruction:** Work with your neighbors in groups. Consider the following BNF and answer the questions

```
A ::= OB | OM | OBM
O ::= "w" | "x" | "s" | "m"
B ::= "i" | "f" | "c" | "r"
M ::= "o" | "t" | "p" | "a" | "h"
```

a. How many nonterminal symbols are in the grammar?

4

b. How many terminal symbols are in the grammar?

13

c. Write two strings that are valid according to the BNF

116 possible strings, including: wio, xf

d. For each of your two strings, give two valid mutants of the string

Dozens for each string
Here are some possible valid mutants:
For wio — wit, mio
For xr — xi, sf

e. For each of your two strings, give two invalid mutants of the string

Thousands for each string
Here are some possible invalid mutants:
For wio — wir, pio
For xr — fr, xm