

Computer Science Team Week 12

Henry Gustafson Julian Bauer

The College Preparatory School

Computer Science Team
March 18, 2024

THIS FRIDAY. (unless there are objections).

Topics: Boolean Algebra, Data Structures, FSAs, and Regular Expressions

Fun coding problems

Theme: Big Brother Canada 12!

Problem Tola

Problem Tola Julian wants to know who will win bbcan12. Given a list of names, return who will win. Any name that starts with the substring "Tola" will win. Use regex.

```
def get_winner() -> string
```

Problem Tola

Example

```
assert get_winner(["Not Tola", "Tolio", "Spicy V", "Tola"]) == "T
```

Problem Bayleigh

Problem Bayleigh Bayleigh is doing a competition in bbcan12. She has to solve a boolean algebra problem, reducing expressions of 1s and 0s based on the operators "*" meaning "and" and "+" meaning "or," in prefix notation. Help her make a problem to simplify this boolean algebra, then invert the answer so Tola can win.

```
def solve(expr: str) -> bool
```

Problem Bayleigh

Example

```
assert solve("+ * 1 0 1") == 0
```

Problem Avery

Problem Avery Avery has 2 possible states: participating in bbcan12 and being with her girlfriend. If Avery is given the opportunity to participate in bbcan12, she will always take that opportunity, no matter what state she's in. Draw a diagram of the Finite-state machine representing this situation.

The End

Questions? Comments? Remarks?
Considerations? Confusions?