

# California State University, Northridge



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Computer Science 490  
Senior Design Project 1

Professor Chaja

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## PROPOSAL IDEA

- Automation Class Schedule Application for CSUN Students

## PROPOSAL OBJECTIVE

- Relief some stress by automation next semesters schedule
- Increase chances of graduating on time
- Stop watching time searching for class, let AutoScheduler help

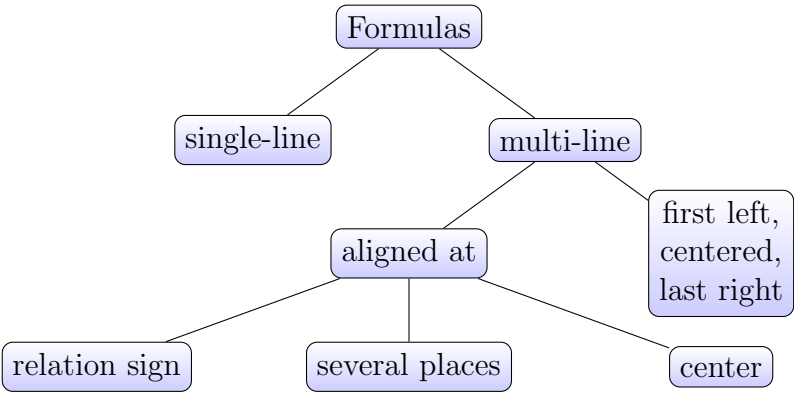
## PROPOSAL SOLUTION

- Pro, third party webtools such as Selenium
- Con, security issues will arise with canvas

SYSTEM ARCHITECTURE:  
Top Level



SYSTEM ARCHITECTURE:  
Low Level



## TECHNOLOGIES USED

### Code

```
1 public class Cons implements ImmutableList {
2     // ---BEGIN INSTANCE VARIABLES---
3     public final int head;
4     public final ImmutableList tail;
5     // ---END INSTANCE VARIABLES---
6
7     public Cons(final int head, final ImmutableList tail) {
8         this.head = head;
9         this.tail = tail;
10    } // Non-Empty List (Head)
11
12    public boolean equals(final Object other) {
13        if (other instanceof Cons) {
14            final Cons otherCons = (Cons) other;
15            return head == otherCons.head && tail.equals(otherCons.tail
16        );
17        } else {
18            return false;
19        }
20    } // equals
21
22    public String toString() {
23        return "Cons(" + head + ", " + tail.toString() + ")";
24    } // toString
25
26    public int hashCode() {
27        return sum();
28    } // hashCode
29
30    public int sum() {
31        return this.head + this.tail.sum();
32    } // sum
33
34    public int length() {
35        return 1 + this.tail.length();
36    } // length
37
38    public boolean contains(final int value) {
39        return this.tail.contains(value) || this.tail.hashCode() ==
40        value || this.head == value;
41    } // contains
42
43    public ImmutableList append(final ImmutableList other) {
44        return new Cons(this.head, this.tail.append(other));
45    } // append
46 }
47 // Cons
```

Listing 1: Cons.java sample code