

## Exercise 2-2

October 4, 2024

Listing 1: Unaltered middle predicate

```
1 % middle(X,Xs)
2 % X is the middle element in the list Xs
3 middle(X, [X]).
4 middle(X, [First|Xs]) :-
5     append(Middle, [Last], Xs),
6     middle(X, Middle).
```

Listing 2: Altered version 1

```
1 middle(X, [First|Xs]) :-
2     append(Middle, [Last], Xs),
3     middle(X, Middle).
4 middle(X, [X]).
```

Listing 3: Altered version 2

```
1 middle(X, [First|Xs]) :-
2     middle(X, Middle),
3     append(Middle, [Last], Xs).
4 middle(X, [X]).
```

Listing 4: Altered version 3

```
1 middle(X, [X]).
2 middle(X, [First|Xs]) :-
3     middle(X, Middle),
4     append(Middle, [Last], Xs).
```