CS 169 - HW 0

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The example below demonstrates the symbolic differentation abilities of the SymEngine library in Julia

In [ ]:
```
# Example 2.1 from K&W
using SymEngine;
@vars x;
f = x^2 + x/2 - sin(x)/x;
diff(f,x);
```

```
1/2 + 2*x + sin(x)/x^2 - cos(x)/x
```

The example below demonstrates the central difference method for numerical differentiation.

In [ ]:
```
# Example 2.4 from K&W
f = x -> sin(x^2);
v = f(π/2 + 0.001im);
println(real(v)); # f(x)
print(imag(v)/0.001); # f'(x)
```

```
0.6242698144866649
-2.4542516170381785
```