

## Quiz #4 Answers

1. Write an ML function that takes a string and a character and returns how many times that character appeared in the string.

```
fun countChar str c
  let
    fun doCount c (h::t) = if h=c then 1+(doCount c t) else (doCount c t)
    | doCount c nil = 0
  in
    doCount c (explode str)
  end;
```

2. Tell me what type ML would infer for each of the following expressions statements.

a. 5;

**int**

b. 5.3;

**real**

c. [1,2,3];

**int list**

d. [("abc",5.0),("def",6.0)];

**(string \* real) list**

e. **fun** myFunc(nil) = (0,0)

| myFunc(h::nil) = (h,0)

| myFunc(e1::e2::t) =

let

val (v1,v2) = myFunc(t)

in

(e1+v1,e2+v2)

end;

**int list -> int \* int**

Extra Credit: Write a function called readInt that takes an instream and returns an int option. The catch is that you aren't allowed to use Int.fromString to do it.

```
fun readInt stream
```

```
  let
```

```
    fun doRead stream NONE val = val
```

```
    | doRead stream (SOME #" ") val = val
```

```
    | doRead stream (SOME #"\\n") val = val
```

```
    | doRead stream (SOME #"\\t") val = val
```

```
    | doRead stream (SOME c) val =
```

```
      doRead stream (TextIO.input1 stream) (10*val+(ord c-ord #"0"))
```

```
  in
```

```
    doRead stream (TextIO.input1 stream) 0
```

```
  end;
```