

Term 1 Practice Questions – Solutions

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1. There are three problems with the code:

- The random number is not generated inside the loop.
- The loop executes one too many times.
- There are problems with integer division.

Below is some code in which these three problems are fixed (and also `elif` is used instead of `if` to illustrate better coding practices).

```
import sys
import random

N = int(sys.argv[1])

x = 0
y = 0
z = 0
count = 1
while count <= N:

    n = random.random()

    if n < 1.0/6.0:
        x = x + 1
    elif n < 2.0/6.0:
        x = x - 1
    elif n < 3.0/6.0:
        y = y + 1
    elif n < 4.0/6.0:
        y = y - 1
    elif n < 5.0/6.0:
        z = z + 1
    else:
        z = z - 1

    print "(" + str(x) + ", " + str(y) + ", " + str(z) + ")"
    count = count + 1

print "squared distance = " + str(x*x + y*y + z*z)
```

2. The output is 41.0.

3. A sample solution is given below.

```
def countChar(s, c):
    count = 0
    for s_i in s:
        if s_i == c:
            count += 1
    return count
```