

CS 140 Quiz 4 Practice Problems

1. Write a python program that simulates tossing a coin fifty times. Then print the total number of heads and tails.

See the Python program on the website

2. Write a python statement that simulates tossing a pair dice by printing two random integers between one and six.

See the Python program on the website

3. Write a python program that reads three integers from the keyboard and prints the largest of the three numbers.

See the Python program on the website

4. What is the output from this program? (Hint: The % operation performs what is called the modulus operation. Test out what it does by typing a few values directly in to the shell, eg., $5 \% 2$, $11 \% 10$, $6 \% 2$.)

```
x = 9382
SUM = 0
while x > 0:
    SUM = SUM + x % 10
    x = x / 10

print SUM
```

% (the modulus function) returns the remainder of the division (i.e., $5\%2 = 1$ because the remainder of this division is 1)

Initially,

```
x = 9382
SUM = 0
```

- 1) $x = 9382 > 0$ (TRUE) <- first time through the loop***
($9382 \% 10 = 2$ – the remainder is 2)
SUM = 0 + 2 = 2 (add 2 (the remainder) to the current value of SUM)
x = $9382/10 = 938$ (careful of integer division!)
- 2) $x = 938 > 0$ (TRUE) <- second time through the loop***
($938\%10 = 8$ – the remainder is 8)
SUM = 2 + 8 = 10 (add the remainder to the current value of SUM)
x = $938/10 = 93$

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3) $x = 93 > 0$ (TRUE) <- third time through the loop
($93\%10 = 3$ – the remainder is 3)
 $SUM = 10 + 3 = 13$ (add the remainder to the current value of SUM)
 $x = 93/10 = 9$

4) $x = 9 > 0$ (TRUE) <- fourth time through the loop
($9\%10 = 9$ – the remainder is 9)
 $SUM = 13 + 9 = 22$ (add the remainder to the current value of SUM)
 $x = 9/10 = 0$

5) $x = 0 > 0$ (FALSE) SO STOP!

When we “print SUM” the answer will be 22.

Note that what we’re actually doing here is adding up the digits of the number! (Try it with some other numbers.)

5. Write a while-loop that prints the even numbers from 200 to 150 in descending order. (Hint: use %)

See the Python program on the website

6. Leap years are years that are divisible by four. Write a program that reads a year from the user and prints whether it was a leap year or not.

See the Python program on the website