Section: 19 /50

3/7/15

# **Cmsc 201 Midterm Practice Exam**

**True or False: (5 points)**

1. True

2. False

3. False

4. True

5. False

**Question and Answer: ( 8 points)**

1. A spinning metal disk and an arm that reads the data written to the disk

2. Takes high level code and executes it. Does not turn it into machine code like a compiler.

3. Every

4. Raising a number to the power of another number

5. Integer Division

6. An “If” statement

7. And, or, not

8. Rounds number down to closest integer

**Primitive Types and Objects: (2 Points)**

1. Any number without decimal places is accepted here

2. String + otherString

3. An integer is more exact than a float and should be used when needing to keep tight control over your values. Integers are also less taxing on the computer. See [here](http://www.dummies.com/how-to/content/the-real-difference-between-integers-and-floatingp.html) for more information.

**Unix Commands: (4 points)**

**What do the following Commands do?**

1. copies a file *EX: cp file1 file2, copies file1 to file2*

2. removes a file *EX: rm file1.txt, removes file1.txt*

3. removes an empty directory. Points are still given if answer does not include the word “empty.” *EX: rmdir empty, removes the directory called empty*

**What will the following Boolean statements equate to? (2 points)**

1. True

2. False

**Evaluate the expressions below (2 Points)**

1. 3

2. 47.75

**What will the following pieces of code print? (10 points)**

**1.**

prints 6

**2.**

16

**3.**

01234

01234

01234

01234

01234

**4.**

10

20

30

40

50

60

70

80

90

100

110

**5.** yussir

**Binary/Trinary: (4 points)**

1. 101001

2. 1100011

3. 10001

4. 241

**Write Code: (10 points)**

1. Write some code that takes an input from a user then prints out all the prime numbers between one and the user’s number.

**Way one:**

def main():

userNumber = int(input(“Enter a number “))

for i in range(1,userNumber):

if i <= 2:

print(“It is prime”)

elif all(i % n for n in range(2,userNumber//2)): #Complicated, explanation below

print(“It is prime”)

main()

*all(i%n for n in range(2, userNumber//2)) is a lot to unpack. First it is necessary to remember that python views 0 as False and any nonzero number as True. Try doing bool(0) and bool(1) in your python shell to see this work for yourself. This code checks if i%n. If i%n == 0 then it is False that i is a prime number and python interprets the result of i %n == 0 (the number 0) as False. If i%n never equals 0 for all integers less than i and greater than 1, then the i is prime as python will interpret the result of i%n as True since it will always be nonzero . The all statement acts like multiple “and” statements. So if i = 5 then the elif code is basically: elif i%2 and i%3 and i%4. We could also try this for i being 100. The code will be all(100%n for n in range(2,50)), this evaluates to 100%2 and 100%3 and 100%4 and 100%5 and so on until 100%49. If any of those and statements return zero then the whole thing will be false (as it will for i = 100 at 100%2). Hopefully that makes things clearer.*

**Way 2:**

def isPrime(n): #*Returns false if number is not prime, returns True if it is Prime*

if n < 2:

return False

else:

for j in range(2,n): #*Checks to see if number is divisible by any number less than it*

if n % j == 0:

return False

return True #If function does not return false, then the number must be prime, now returns True.

def main():

userNumber = int(input("Enter a number "))

for i in range(1, userNumber):

print("is", i, "prime?",isPrime(i)) #Calls the isPrime function

main()

**Other Ways:**

*there are many other ways to do this, if your code works, then you get the points. Check online for other solutions while studying*

2.Sally loves words, but hates words with exactly six letters. Sally is given a list of words [luggage, airplane, apples, phones, butter, butterscotch] but really hates the words with six letters. Write a program that returns her list of words without the words that have six letters. Print the words that don’t have six characters as a list.

def main():

sallyList = ["luggage", "airplane", "apples", "phones", "butter", "butterscotch"]

noSixList = []

for word in sallyList:

if len(word) != 6:

noSixList.append(word)

print(noSixList)

main()

**Error in code: ( 3 points)**

*max is assigned using ==, should use =*

*for loop needs a colon*

*print statement needs parentheses*

*the print statement needs to be indented*

*the function needs to be called*

*If you got three out of the five, you got the points*