

MATH5061: Week 6 Assignment

Instructions

Please submit answers to this assignment as a plain text file via email to math5061@temple.edu. Make sure to use the subject line (without quotes)

"MATH5061:Assignment 06:ACCESSID"

Where ACCESSID is your AccessNet ID, for example tue86537

Section 1

Q1.1

Variable 'a' is a list of integers. Fill in the blank parts of the program so that it prints the sum of the absolute values (value without sign) of the values in the list

```
tot = 0
for i in a:
    if [REDACTED]:
        tot += i
    else:
        tot += (-i)

print(tot)
```

Q1.2

The statement `print(type(100))` produces the output `<class 'int'>`. What is the output of the following program

```
a = 255
b = 0xFF
c = 1E2
d = 0.01
print(type(a), type(b), type(c), type(d))
```

Q1.3

What is the type of var.

```
a = [1.23, 22, 'world']  
var = a[2]
```

- 1) list
- 2) dict
- 3) str
- 4) int

Q1.4

What is the type of var

```
var = '123' * 5
```

- 1) list
- 2) dict
- 3) str
- 4) int

Q1.5

What is the type of var

```
var = 1.2 * 5
```

- 5) list
- 6) float
- 7) str
- 8) array

Section 2

Q2.1

The condition for a year to be a leap year is that it should be divisible by 4, except when that year is divisible by 100 and not divisible by 400, in which case it is not a leap year.

Complete the following function, so that it returns True if a year is a leap year and False otherwise.

```
def isleapyr(year):  
    #cond_4 is True if divisible by 4, False otherwise  
    cond_4 = not (year%4)  
    #cond_100 is True if divisible by 100, False otherwise  
    cond_100 = not (year%100)  
    #cond_400 is True if divisible by 400, False otherwise  
    cond_400 = not (year%400)  
  
    _____
```

Q2.2

Fill the spaces with slicing syntax so that the output matches what is shown

```
>>> var = 'inact'  
>>> var = var[ _____ ] + 'ter' + var[ _____ ]  
  
>>> print(var)  
interact
```

Q2.3

Complete the program so that it prints the input string in reverse

```
a = input()
[ ]
rev = ""
while pos >= 0:
    rev += a[pos]
    [ ]

print(rev)
```

Q2.4

For a variable `mylist`, how would you sort the list *in-place*

- 1) `mylist.sort()`
- 2) `mylist.sorted()`
- 3) `sorted(mylist)`
- 4) `quicksort(mylist)`

Q2.5

What is the output of this program

```
def update(sparse, row, col, value):
    if value:
        sparse[(row,col)] = value
    elif (row,col) in sparse:
        del sparse[(row,col)]

sparse = {}
update(sparse, 0, 0, 1)
update(sparse, 1, 1, 1)
update(sparse, 2, 2, 1)
update(sparse, 3, 3, 1)
update(sparse, 1, 1, 0)
print(sparse)
```

Q2.6

What is the output of this program

```
class XY:
    def __init__(self, num):
        self.num = num

    def printnum(self):
        print(self.num)

a = 34
obj_a = XY(a)
a = 44
obj_b = XY(a)

obj_b.printnum()
obj_a.printnum()
print(obj_a.num)
```