

```
In [1]: 1 def closest(numbers,n):
2         if len(numbers)==0:
3             print("Error")
4             return None
5         cnum=numbers[0]
6         mindiff=abs(n - cnum)
7         for num in numbers[1:]:
8             diff=abs(n - num)
9             if diff<mindiff or (diff==mindiff and num<cnum):
10                 cnum=num
11                 mindiff=diff
12         return cnum
13
14 closest([1,3,5,7,9,11],10)
15
```

Out[1]: 9

```
In [2]: 1 def names():
2         s="""Anna is 7 years old, and her sister Olivia is 2 years old.
3         Evelyn and Paul, their parents, have 3 kids."""
4         nl=[]
5         for word in s.split():
6             if word.istitle() and word.isalpha():
7                 nl.append(word)
8         print("Number of names:",len(nl))
9         return nl
10 names()
11
```

Number of names: 3

Out[2]: ['Anna', 'Olivia', 'Evelyn']

```
In [3]: 1 def grades():
2         with open("/Users/JOSH/Desktop/Math 4332 (Python)/3. HW/HW10/H10txtfiles/grades.txt") as f:
3             content = f.read()
4             b=[line.strip() for line in content.split('\n') if line.strip()[-1] == 'B']
5             print("\nNumber of students with grade 'B':",len(b))
6             return b
7         grades()
8
```

Number of students with grade 'B': 18

Out[3]: ['Bell Kassulke: B',
'Simon Loidl: B',
'Elias Jovanovic: B',
'Hakim Botros: B',
'Emilie Lorentsen: B',
'Tony Mcdowell: B',
'Jake Wood: B',
'Fatemeh Akhtar: B',
'Kim Weston: B',
'Coby McCormack: B',
'Yasmin Dar: B',
'Viswamitra Upandhye: B',
'Killian Kaufman: B',
'Elwood Page: B',
'Elodie Booker: B',
'Adnan Chen: B',
'Hank Spinka: B',
'Hannah Bayer: B']

```
In [4]: 1 def logs():
2         log=[]
3
4         with open("/Users/JOSH/Desktop/Math 4332 (Python)/3. HW/HW10/H10txtfiles/log
5             for line in f:
6                 part=line.split()
7                 user=part[2] if part[2]!="-" else None
8                 time=" ".join(part[3:5])[1:-1]
9                 pos=line.find('\"',line.find('\"')+1)
10                entry={"host":part[0],"user_name":user,"time":time,"request":line[line.find('\"
11                log.append(entry)
12        print("\nNumber of log entries:",len(log))
13        return log
14    logs()
15
```

Number of log entries: 978

```
Out[4]: [{'host': '146.204.224.152',
  'user_name': 'feest6811',
  'time': '21/Jun/2019:15:45:24 -0700',
  'request': 'POST /incentivize HTTP/1.1'},
 {'host': '197.109.77.178',
  'user_name': 'kertzmann3129',
  'time': '21/Jun/2019:15:45:25 -0700',
  'request': 'DELETE /virtual/solutions/target/web+services HTTP/2.0'},
 {'host': '156.127.178.177',
  'user_name': 'okuneva5222',
  'time': '21/Jun/2019:15:45:27 -0700',
  'request': 'DELETE /interactive/transparent/niches/revolutionize HTTP/1.1'},
 {'host': '100.32.205.59',
  'user_name': 'ortiz8891',
  'time': '21/Jun/2019:15:45:28 -0700',
  'request': 'PATCH /architectures HTTP/1.0'},
 {'host': '168.95.156.240'}
```

```
In [5]: 1 def findall(s,char):
2         locations=[]
3         for i,c in enumerate(s):
4             if c==char:
5                 locations.append(i)
6         return locations
7     result=findall("mississippi","s")
8     print(result)
9
```

[2, 3, 5, 6]

```
In [6]: 1 def digital_root(n):
2         while n >= 10:
3             n = sum(int(digit) for digit in str(n))
4         return n
5     result = digital_root(3579)
6     print(result)
7
```

6

In [7]:

```
1 def closest(L, n):
2     cnum = None
3     for num in L:
4         if num <= n and (cnum is None or num > cnum):
5             cnum = num
6     return cnum
7 result = closest([1, 6, 3, 9, 11], 10)
8 print(result)
9
```

9

In []:

1