

```
1 class Head:
2     #####
3     # Helping function
4     #####
5     def __pi(self):
6         return 3.1416
7
8     #####
9     # Manager function
10    #####
11    # Including a default contructor
12    def __init__(self, Radius, eye, nose, mouth):
13        self.__Radius = Radius
14        self.__eye = eye
15        self.__nose = nose
16        self.__mouth = mouth
17    def __del__(self):
18        pass
19
20    #####
21    # Access function
22    #####
23    def getRadius(self):
24        return self.__Radius
25    def setRadius(self, R):
26        self.__Radius = R
27    def getEye(self):
28        return self.__eye
29    def setEye(self, eye):
30        self.__eye = eye
31    def getNose(self):
32        return self.__nose
33    def setNose(self, nose):
34        self.__nose = nose
35    def getMouth(self):
36        return self.__mouth
37    def setMouth(self, mouth):
38        self.__mouth = mouth
39    def isNormal(self):
40        return self.__left_eye == self.__right_eye
41
42    #####
43    # Implementor function
44    #####
45    def toString(self):
46        print (self.getEye().toString())
47        print (self.getNose().toString())
48        print (self.getMouth().toString())
49        return "Radius= " + str(self.__Radius)
50
51    def headAche(self):
52        self.__nose = 1
```

```
1 class Mouth:
2     #####
3     # Helping function
4     #####
5     def __trace(self, s):
6         print(s)
7     #####
8     # Manager function
9     #####
10    # Including a default contrutctor
11    def __init__(self, width, height):
12        self.__width = width
13        self.__height = height
14    def __del__(self):
15        pass
16
17    #####
18    # Access function
19    #####
20    def getWidth(self):
21        return self.__width
22    def setWidth(self, w):
23        self.__width = w
24    def getHeight(self):
25        return self.__height
26    def setHeight(self, h):
27        self.__height = h
28    def isBig(self):
29        return (self.__width > 10) * (self.__height > 5)
30
31    #####
32    # Implementor function
33    #####
34    def toString(self):
35        return ("Width= " + str(self.__width),
36              "Height= " + str(self.__height))
37    def close(self):
38        self.__height = 1
```

```
1 class Nose:
2     #####
3     # Helping function
4     #####
5     def __trace(self, s):
6         print(s)
7     #####
8     # Manager function
9     #####
10    # Including a default contructor
11    def __init__(self, sideX, sideY, sideZ):
12        self.__sideX = sideX
13        self.__sideY = sideY
14        self.__sideZ = sideZ
15    def __del__(self):
16        pass
17
18    #####
19    # Access function
20    #####
21    def getSideX(self):
22        return self.__sideX
23    def setSideX(self, x):
24        self.__sideX = x
25    def getSideY(self):
26        return self.__sideY
27    def setSideY(self, y):
28        self.__sideY = y
29    def getSideZ(self):
30        return self.__sideZ
31    def setSideZ(self, sideZ):
32        self.__sideZ = z
33    def isBig(self):
34        return (x>10)+(y>10)+(z>10)
35    def isImpossible(self):
36        if x>y:
37            t=x
38            x=y
39            y=t
40        if y>z:
41            t=y
42            y=z
43            z=t
44        return x<y<z
45
46    #####
47    # Implementor function
48    #####
49    def toString(self):
50        return ("sideX= " + str(self.__sideX),
51               "sideY= " + str(self.__sideY),
52               "sideZ= " + str(self.__sideZ))
53    def Break(self):
54        self.__x=0
```

```
1 #!/usr/bin/python
2
3 # TestHead.py
4 import Head, Mouth, Nose, Eye
5 import sys, getopt
6
7 def usage():
8     print ('Usage: TestHead.py -n')
9     print ('Usage: TestHead.py -x<sideX> -y<sideY> -z<sideZ> -w<width> -h<height> -R<Radius> -a<left_eye> -b<right_eye>')
10    print ('Usage: TestHead.py --sideX<sideX> --sideY<sideY> --sideZ<sideZ> --width=<width> --height=<height> --Radius=<Radius> --left_eye<left_eye> --right_eye<right_eye>')
11
12 def main(argv):
13     radius = ''
14     sideX = ''
15     sideY = ''
16     sideZ = ''
17     width = ''
18     height = ''
19     Radius = ''
20
21     try:
22         opts, args = getopt.getopt(argv,"nx:yz:w:h:R:a:b:",["sideX=", "sideY=", "sideZ=", "width=", "height=", "Radius=", "left_eye=", "right_eye="])
23     except getopt.GetoptError:
24         usage()
25         sys.exit(2)
26
27     for opt, arg in opts:
28         if opt == '-n':
29             usage()
30             sys.exit()
31         elif opt in ("-x", "--sideX"):
32             sideX = arg
33         elif opt in ("-y", "--sideY"):
34             sideY = arg
35         elif opt in ("-z", "--sideZ"):
36             sideZ = arg
37         elif opt in ("-w", "--width"):
38             width = arg
39         elif opt in ("-h", "--height"):
40             height = arg
41         elif opt in ("-R", "--Radius"):
42             Radius = arg
43         elif opt in ("-a", "--left_eye"):
44             left_eye = arg
45         elif opt in ("-b", "--right_eye"):
46             right_eye = arg
47
48     eye = Eye.Eye(left_eye, right_eye)
49     nose = Nose.Nose(sideX, sideY, sideZ)
50     mouth = Mouth.Mouth(width, height)
51     normalHead = Head.Head(Radius, eye, nose, mouth)
52     print (normalHead.toString())
53     eye.close()
54     mouth.close()
55     print (normalHead.toString())
56     if (eye):
57         print ("normalHead has a headache")
58     else:
59         print ("normalHead does not have a headache")
60
61 if __name__ == '__main__':
62     main(sys.argv[1:])
63
```

```
1 class Eye:
2     #####
3     # Helping function
4     #####
5     def __pi(self):
6         return 3.1416
7     #####
8     # Manager function
9     #####
10    # Including a default contructor
11    def __init__(self, left_eye, right_eye):
12        self.__left_eye = left_eye
13        self.__right_eye = right_eye
14    def __del__(self):
15        pass
16
17    #####
18    # Access function
19    #####
20    def getLeft_eye(self):
21        return self.__left_eye
22    def setLeft_eye(self, left_eye):
23        self.__left_eye = a
24    def getRight_eye(self):
25        return self.__right_eye
26    def setRight_eye(self, right_eye):
27        self.__right_eye = b
28    def isSmall(self):
29        return self.__radius < 10
30
31    #####
32    # Implementor function
33    #####
34    def toString(self):
35        return ("left_eye= " + str(self.__left_eye),
36              "right_eye= " + str(self.__right_eye))
37    def close(self):
38        self.__left_eye = 1
39        self.__right_eye = 1
```