

CS995 - Week 3 Homework

(Chapter 10, Exercise 9) Write a class to represent spheres. Your class should implement the following methods:

```
__init__(self, radius) Creates a sphere having the given radius.  
getRadius(self) Returns the radius of this sphere.  
surfaceArea(self) Returns the surface area of the sphere.  
volume(self) Returns the volume of the sphere.
```

[3 Marks]

(Chapter 10, Exercise 10) Same as the previous problem, but for a cube. The constructor should accept the length of a side as a parameter.

[2 Marks]

3. Implement a class named `BankAccount`. Every bank account has a starting balance of £0.00. The class should implement methods to accept deposits and make withdrawals, but an error should be raised if a withdrawal is attempted for more money than is currently in the account.

```
__init__(self) Sets the balance to 0.0.  
  
deposit(self, amount) Deposits money. An error if amount is less than 0.  
  
widthdraw(self) Withdraws money. Raises an error if the account is overdrawn.  
  
balance(self) Returns the amount of money in the account.
```

[3 Marks]

4. Extend the previous problem by allowing transfers between accounts. Your code should support the following scenario:

```
checking = BankAccount()  
savings = BankAccount()  
  
checking.deposit(500)  
checking.transfer(200, savings)  
  
print(checking.balance()) # should print 300  
print(savings.balance()) # should print 200
```

[2 Marks]