```java
public class Cash extends Donation
{
      private String currency;

      public Cash(double amt, String loc, String don, String cur)
      {
            super(amt, loc, don);
            currency = cur;
      }

      public Cash(Cash csh)
      {
            super(csh);
            currency = csh.currency;
      }

      public String getCurrency()
      {
            return currency;
      }

      public void display()
      {
            super.display();
            System.out.println("Currency: " + currency);
      }
}
```

```java
import java.io.*;
public class CharityAssociation implements IOInterface
{
      private String name;
      private Donation arDonation[];
      private int nb;

      public CharityAssociation(String name, int size)
      {
            this.name = name;
            arDonation = new Donation[size];
            nb = 0;
      }

      public boolean addDonation(Donation d)
      {
            if(nb < arDonation.length)
            {
                  if(d instanceof Cash)
                  {
                        arDonation[nb] = new Cash((Cash) d);
                  }
                  else
                  {
                        arDonation[nb] = new Check((Check) d);
                  }
            nb++;
            return true;
        }
        return false;
    }
    public double avgCashDonation(String cur)  {
        double sum = 0.00;
        double amnt = 0.00;

        for(int i=0; i<nb; i++) {
            if(   arDonation[i] instanceof Cash &&
                ((Cash)arDonation[i]).getCurrency().equals(cur) ) {
                try   {
                    amnt = arDonation[i].getAmount();
                    sum += amnt;
                }
                catch(Exception e) {    }
            }
        }
        if(nb != 0) {
            return sum/nb;
        }
        return sum;
    }

    public Donation getCheck(String bName) {
        for(int i=0; i<nb; i++) {
            if(   arDonation[i] instanceof Check &&
                ((Check)arDonation[i]).getBankName().equals(bName) )
{

                return arDonation[i];
            }
        }
        return null;
    }

    public void saveToFile(String fileName, String donor) throws
IOException {
        File f = new File(fileName);
        FileOutputStream fo = new FileOutputStream(f);
        ObjectOutputStream os = new ObjectOutputStream(fo);

        try {
            for(int i=0; i<nb; i++) {
                if(arDonation[i] instanceof Cash &&
                  arDonation[i].getDonorName().equals(donor)) {
                        os.writeObject(arDonation[i]);
                }
            }
        }
        catch(IOException e)
        {
                System.out.println("Error in saveToFile");
        }
        os.close();

    }
```

```
public void loadFromFile(String fileName, Check arrCheck[])throws IOException
{
            File f = new File(fileName);
            FileInputStream fi = new FileInputStream(f);
            ObjectInputStream is = new ObjectInputStream(fi);
Donation d;
            int j = 0;

            try
            {
                  while (true){
                        d = (Donation) is.readObject();
                        if(   d instanceof Check &&
                              j < arrCheck.length){ // this is optional
                              arrCheck[j] = (Check) d;
                              j++;
                        }
                  }
}
            catch(Exception e)
            {
                  is.close();
            }
      }


}
```

```
public class Check extends Donation
{
      private String bankName;

      public Check(double amt, String loc, String don, String bName)
      {
            super(amt, loc, don);
            bankName = bName;
      }

      public Check(Check ck)
      {
            super(ck);
            bankName = ck.bankName;
      }

      public String getBankName()
      {
            return bankName;
      }

      public void display()
      {
            super.display();
            System.out.println("Bank Name: " + bankName);
      }
}
```

```
import java.io.Serializable;

public class Donation implements Serializable  {
      private double amount;
      private String location;
      private String donorName;

      public Donation(double amt, String loc, String dnr) {
            amount = amt;
            location = loc;
            donorName = dnr;
}

      public Donation(Donation d) {
            amount = d. amount;
            location = d. location;
            donorName = d. donorName;
}


      public String getDonorName()  {
            return donorName;
      }

      public double getAmount() throws Exception {
            if(amount < 0)
            {
                  throw new Exception("Error, amount < 0");
            }
            return amount;
      }


      public void display() {
            System.out.println("Amount: " + amount);
            System.out.println("Location: " + location);
            System.out.println("Donor: " + donorName);
      }
}
```

```
import java.io.IOException;

public interface IOInterface
{
      public void saveToFile(String filename, String donor ) throws
IOException;
```

```
      public void loadFromFile(String filename, Check arrCheck[]) throws
IOException;
}
```