**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);

 }

}

**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;

}