**public** **abstract** **class** AudioTrack **/1**{ **/8 Marks**

**protected** String title; **/2**

**protected** **int** duration;

**public** AudioTrack(String tt, **int** dd)

{

title=tt; **/2**

duration = dd;

}

**public** AudioTrack(AudioTrack t)

{ **/2**

title=t.title;

duration = t.duration;

}

**public** **abstract** **void** display(); **/1**

}

**public** **class** Sourat **extends** AudioTrack { **/11 Marks**

**private** **int** souratNumber; **/1 (0.5, 0.5 )**

**private** **int** nbrOfAyat ;

**public** Sourat(String tt, **int** dd, **int** sn, **int** nay)

{

**super**(tt, dd); **/4** **(2,1,1)**

souratNumber = sn;

nbrOfAyat=nay;

}

**public** Sourat(Sourat SO)

{ **/4 (2, 1, 1)**

**super**(SO);

souratNumber = SO.souratNumber;

nbrOfAyat= SO.nbrOfAyat;

}

**public** **void** display()

{ **/2**

System.*out*.println("Sourat Number: " + souratNumber);

System.*out*.println("Number of Ayat: " + nbrOfAyat);

}

}

**public** **class** CD { **/21 Marks**

**private** String title;

**private** **int** price; **/2 (0.5, 0.5, 0.5 , 0.5)**

**private** AudioTrack [] aTracks;

**private** **int** nbTrack;

**public** CD(String tt, **int** pp, **int** size)

{

aTracks= **new** AudioTrack[size]; **/3 (1.5, 0.5 , 0.5, 0.5)**

title= tt;

price = pp;

nbTrack = 0;

}

**public** **void** addAudiotrack(AudioTrack AT)

{ **/6 ( 1 for each statement)**

**if**(nbTrack < aTracks.length)

{

**if**(AT **instanceof** Sourat)

{

aTracks[nbTrack] = **new** Sourat (( Sourat)AT);

}

**else**

{

aTracks[nbTrack] = **new** Nashid (( Nashid)AT);

}

nbTrack++;

}

**else**

System.*out*.println("Error: max AudiTrack number reached");

}

**public** **void** displayAll()

{ **/4 (2 , 2)**

**for**(**int** i=0; i< nbTrack; i++)

aTracks[i].display();

}

**public** **int** countNashid( **int** ry)

{ **/6( 1 for each statement)**

**int** count =0;

**for**(**int** i=0; i< nbTrack; i++)

{

**if**( aTracks[i] **instanceof** Nashid)

{

**if**(((Nashid) aTracks[i]).getRecordYear()== ry)

{

count++;

}

}

}

**return** count;

}

}

**public** **class** Reciter { **/11 Marks**

**private** String name; **/2 ( 0.5 each)**

**private** **int** age;

**private** CD CDs [];

**private** **int** nbCd;

**public** Reciter (String nn, **int** ag, **int** size)

{

name = nn; **/2 (0.5 each)**

age = ag;

CDs = **new** CD[size];

nbCd = 0;

}

**public** **void** addCD( CD ccd) **/4 (0.5 for each statement)**

{

**if**(nbCd< CDs.length)

{

CDs[nbCd] = ccd;

nbCd++;

}

**else**

{

System.*out*.println("Error: max CD number reached");

}

}

**public** **void** displayAll()

{ **/3 ( 2, 1)**

**for**(**int** i=0; i< nbCd; i++)

CDs[i].displayAll();

}

}

**public** **class** Test\_CDs { **/9 Marks**

**public** **static** **void** main(String[] args) {

**(0.5 each)**

CD cd1 = **new** CD("Allah",55,3);

CD cd2 = **new** CD("Mohammed", 52, 2);

Sourat st1 = **new** Sourat ("Al Rahman", 4, 120, 24 );

Sourat st2 = **new** Sourat ("Al Maeeda", 4, 100, 21 );

Sourat st3 = **new** Sourat ("Al Fajer", 4, 136, 20);

Nashid nsh1 = **new** Nashid("Bader", 2, 2011);

Nashid nsh2 = **new** Nashid("Makka", 3, 2011);

cd1.addAudiotrack(st1);

cd1.addAudiotrack(st2);

cd1.addAudiotrack(nsh1);

cd2.addAudiotrack(st3);

cd2.addAudiotrack(nsh2);

//cd1.displayAll();

//System.out.println();

//cd2.displayAll();

**/1.5**

**int** tot= cd1.countNashid(2011)+ cd2.countNashid(2011);

System.*out*.println("The total number of Nsshid recirded in 2011 is: "+ tot);

Reciter Rc= **new** Reciter("Al Bohsali", 67, 2); **(0.5 each)**

Rc.addCD(cd1);

Rc.addCD(cd2);

//System.out.println();

//System.out.println();

//Rc.displayAll();

}

}