**package** c1;

**public** **class** InvalidID **extends** Exception{

**int** eid;

InvalidID(**int** eid){

**this**.eid=eid;

}

**public** String toString()

{

**return** "Invalid ID"+eid;

}

}

**class** InvalidType **extends** Exception{

String type;

InvalidType(String type){

**this**.type=type;

}

**public** String toString()

{

**return** "Invalid Type"+type;

}

}

**class** InvalidPower **extends** Exception{

**int** pow;

InvalidPower(**int** pow){

**this**.pow=pow;

}

**public** String toString()

{

**return** "Invalid Power"+pow;

}

}

**class** InvalidWeight **extends** Exception{

**float** wei;

InvalidWeight(**float** engineWeight){

**this**.wei=engineWeight;

}

**public** String toString()

{

**return** "Invalid Weight"+wei;

}

}

//Engine class

**package** c1;

**public** **class** Engine {

**private** **int** engineID;

**private** String engineType;

**private** **int** horsePower;

**private** **float** engineWeight;

**public** **void** setID(**int** id)

{

//autoboxing

Integer obj=id;

String str=obj.toString();

**int** len=str.length();

**try** {

**if**(len==5)

{

engineID=id;

}

**else**

{

**throw** **new** InvalidID(engineID);

}

}

**catch**(InvalidID e){

System.***out***.println(e);

}

}

**public** **void** setType(String type)

{

**boolean** m=type.matches("[A-Z a-z]+");

**int** len=type.length();

**try** {

**if**(len==5 && m)

{

engineType=type;

}

**else**

{

**throw** **new** InvalidType(engineType);

}

}

**catch**(InvalidType e){

System.***out***.println(e);

}

}

**public** **void** setPower(**int** pow)

{

**try** {

**if**(pow<1000)

{

**throw** **new** InvalidPower(horsePower);

}

**else**

{

horsePower=pow;

}

}

**catch**(InvalidPower d)

{

System.***out***.println(d);

}

}

**public** **void** setWeight(**float** Wei)

{

**try** {

**if**(Wei<1000)

{

**throw** **new** InvalidWeight(engineWeight);

}

**else**

{

engineWeight=Wei;

}

}

**catch**(InvalidWeight dp)

{

System.***out***.println(dp);

}

}

**public** **int** getID()

{

**return** engineID;

}

**public** String getType()

{

**return** engineType;

}

**public** **int** getPower()

{

**return** horsePower;

}

**public** **float** getWeight()

{

**return** engineWeight;

}

**public** String toString()

{

**return** String.*format*("Engine ID=%d%n engineType=%s%n Horsepower=%d%n Engine Weight=%f kg",getID(),getType(),getPower(),getWeight());

}

}

//demo

**package** c1;

**public** **class** Demo {

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

Engine e=**new** Engine();

e.setID(90187);

e.setType("Petro");

e.setPower(5000);

e.setWeight(2000);

System.***out***.println(e);

}

}