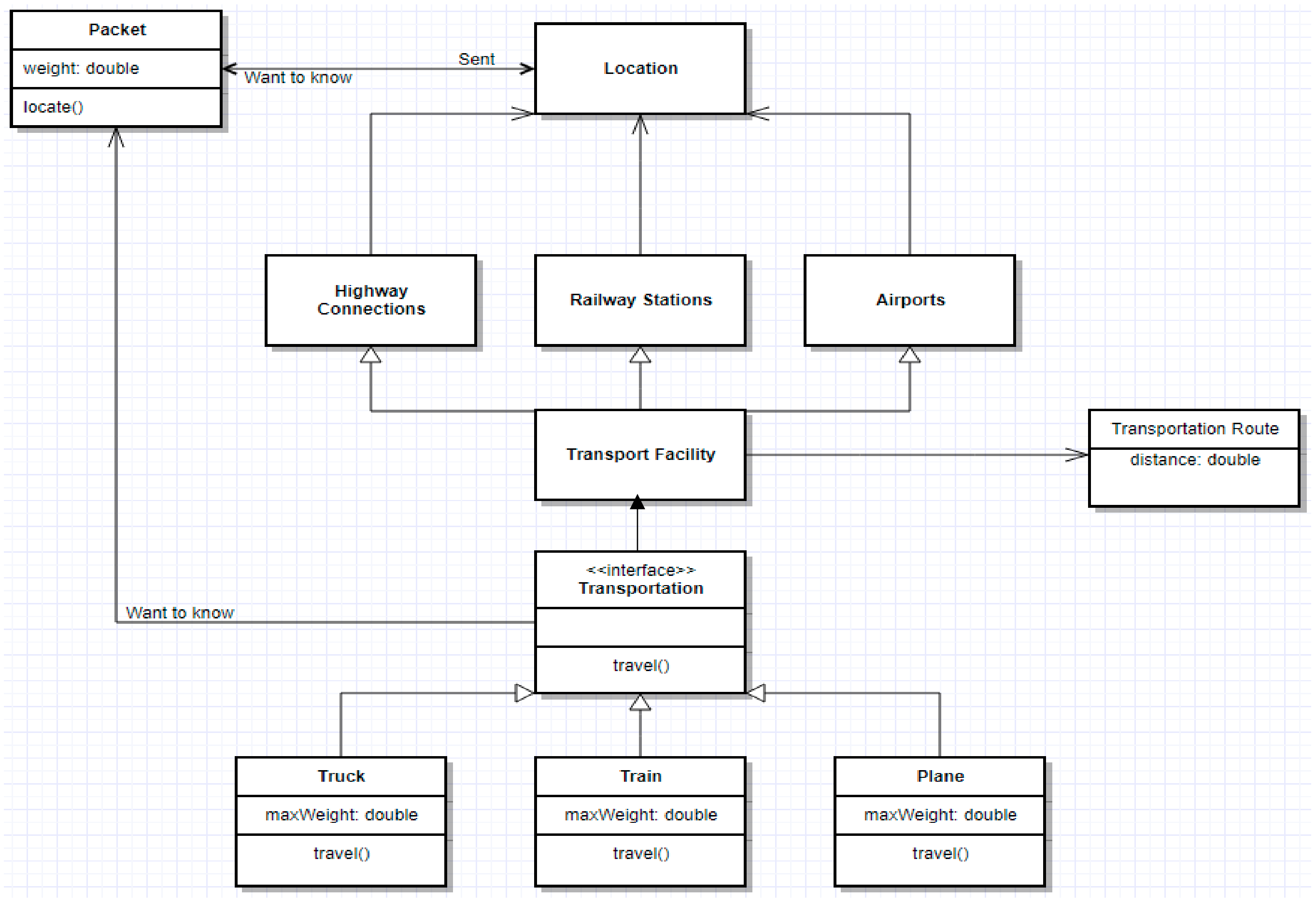
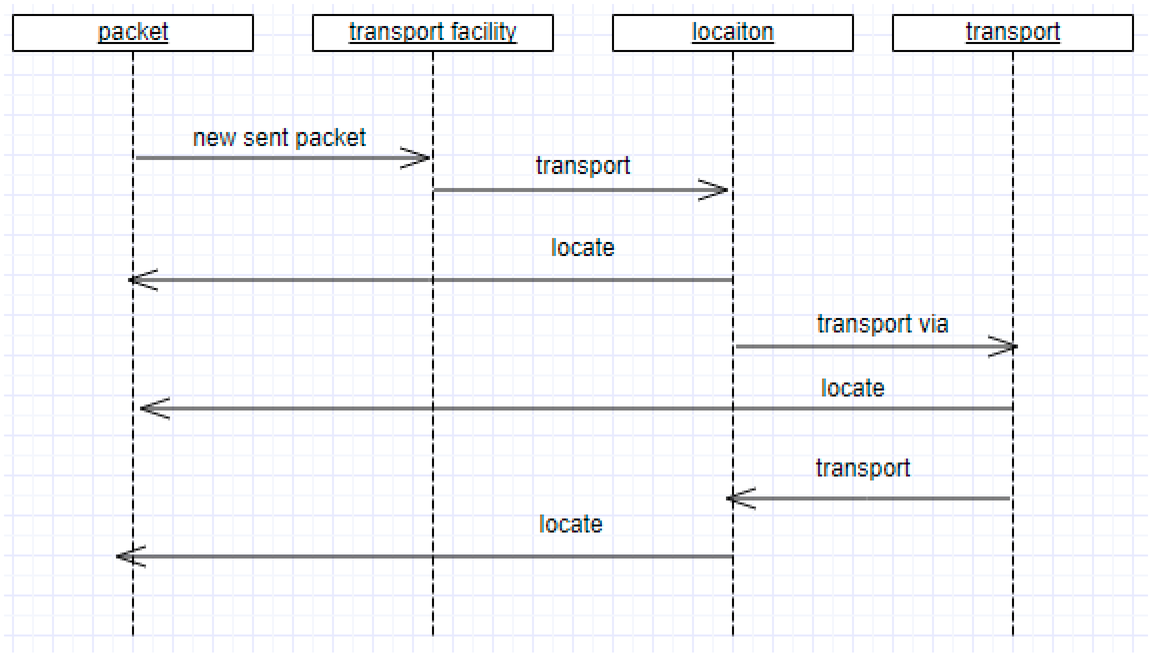
Problem 1:


Packet
weight: double
locate()
Sent
Want to know
Location
Highway Connections
Railway Stations
Airports
Transport Facility
Transportation Route
distance: double
<<interface>> Transportation
travel()
Want to know
Truck
maxWeight: double
travel()
Train
maxWeight: double
travel()
Plane
maxWeight: double
travel()


packet
transport facility
locaiton
transport
new sent packet
transport
locate
transport via
locate
transport
locate

Problem 2:

```
public class A
{
        public void functionA(B b)
        {

        }
}

public class B
{
        public B()
        {

        }
}

public class C extends A
{
        public void functionC(D d)
        {

        }
}

public class D
{
        private F[] classF;
        ArrayList<F> bList = new ArrayList<F>();

        public D()
        {
                classF = new F[2];
                classF[0]= new F();
                classF[1]= new F();
                bList.add(new B();
        }
}

public class E extends C
{

}
```

```
public class F
{
	private D[] classD;
	ArrayList<D> dList = new ArrayList<D>();

	public F()
	{
		classD = new D[5];
		classD[0]= new B();
		classD[1]= new B();
		classD[2]= new B();
		classD[3]= new B();
		classD[4]= new B();
	}
}
```

Problem 3

- The reason you could be having trouble is because Hexadecimal in in base16 there are inbuilt memory allocation limits in java.
- The inbuilt memory allocation limits could be reached causing the program to crash.
- You could use a composition which is a “has-a” kind of relationship rather than the “is-a” relationship that is inheritance. So instead of extending the Integer class you would have an instance of it.