universal cover for all hwks and exams/V2	
Last name, First name	
course (CSCI-NNN)	cs220
Assignment number (hwkN/examN)	hwk2
Date	2021/02/02
your email address	@eagles.bridgewater.edu

Do not do any computation on this page.
If the hwk has Multiple choice questions (MCQ), then mark your solution in this table here.
Suppose you think correct answer is C. You will then attach letter X to your desired answer like CX. If the work is handwritten you can handwrite X, if the work is typed in Word you will type in Word X.

1	A	B	C	D	
2	A	B	C	D	
3	A	B	C	D	
4	A	B	C	D	
5	A	B	C	D	
6	A	B	C	D	
7	A	B	C	D	
8	A	B	C	D	
9	A	B	C	D	
10	A	B	C	D	
11	A	B	C	D	
12	A	B	C	D	
13	A	B	C	D	
14	A	B	C	D	
15	A	B	C	D	

//your typed or handwritten work starts on the next page
Note if I request that your answer should be 4-6 sentences, it is only a guideline. It means if you give me 2 sentences, it may not be enough. If you write half a page it is way too much.

Write a Java program .
Class name Fraction.
All programs have class header.

Fraction will have the following required methods with the signature and return type specified.
You are free add other variables and methods you like. Note fractions will be simplified as follows.

2 and 3/4 will be 11/4

16 /2 will be 8 / 1.

Note that 5 / 0 is illegal and if somebody sets denominator to 0, replace denominator by 1.

```java
        public void setNum(int numx);

        public int getNum();

        public void setDenom(int denomx);

        public int getDenom();
```

Write method comment like this add() for each method.
```java
        /**
         *
         * Description:
         * Add two fractions and assign result to this object.
         *
         */
        public void add(Fraction x1, Fraction x2);


        public void sub(Fraction x1, Fraction x2);


        public void mpy(Fraction x1, Fraction x2);

        /**
         *
         * Description:
         * Print the fraction numerator and donominator.
         * Print the fraction like this:  fk = 3 / 5.
         * Where fk is the name of the fraction object.
         *
         *
         */
        public void print(String name);
```

In the main you will have exactly this code and the values. I will play with the values and you should test it with various values but in the end submit with the values listed here.

```java
static public void main(String[] args)
{
        Fraction f1 = new Fraction();
        f1.setNum(3);
        f1.setDenom(16);

        Fraction f2 = new Fraction();
        f2.setNum(4);
        f2.setDenom(5);

        Fraction f3 = new Fraction();

        f1.print("f1");
        f2.print("f2");

        f3.add(f1, f2);
        f3.print("f3 = f1 + f2");

        f3.sub(f1, f2);
        f3.print("f3 = f1 - f2");

        f3.mpy(f1, f2);
        f3.print("f3 = f1 * f2");

        Fraction f4, f5, f6;
        f4 = new Fraction(3, 4);
        f5 = new Fraction(8, 9);
        f6 = new Fraction(1, 0);
        f6.add(f4, f5);
        f6.print("f6");

        f6.mpy(f4, f5);
        f6.print("f6");
}
```

Hints:
Print method will be informative. It will print more than just value. It will print a "message" specified as a string.
f6.print("f6");
So I may see something like:
f6 is 3 / 5

Program2.

Consider program that models a kennel. The kennel accepts two kind of pets, dogs and cats.
There are 4 classes.
KennelPoly //main class
base class Pet concrete class
subclass Dog and Cat.

```java
public class Pet     //concrete class, base class
class Cat extends Pet
class Dog extends Pet
```

Each pet has makeSound() method.I make this sound ..bark (or meow).
Each pet has print() method that prints: I am a dog (or cat) and their name.
Ex: I am dog and my name is fluffy.

```java
public class KennelPoly
{
      //Your main method will have exactly this code.
      public static void main(String args[])
      {
            System.out.println("KennelPoly");


            //Inheritance and poly solution.
            // This array accepts any subclass of Pet.
            Pet[] pets = new Pet[10];
            pets[0] = new Cat("princes");
            pets[1] = new Dog("max");
            pets[2] = new Cat("pepper");
            pets[3] = new Cat("monday");

            for (Pet pet : pets)
            {
                  if (pet != null)
                  {
                        pet.print();
                        pet.makeSound();
                  }
            }

      }
}
```