Exercise 2.1
/* Saket Bakshi, Period 6
Question 2.1 of Ch 3 project. This program prints ideas of methods for a vendingmachine class.
*/

```java
public class Ch3ProjectQ2_1SBakshi
{
        public static void main(String[] args)
        {
                System.out.println("Methods for cans could be:\ngetCans(), which returns the
number of cans in the machine\naddCans(), which adds a number of cans to a
machine\nbuySoda(), which removes a can from the machine");
                System.out.println("Methods for tokens could be:\ngetTokens(), which returns
how many tokens the machine has\nremoveTokens(), to empty the machine\nbuySoda(), with
an explicit parameter for number of tokens added");
        }
}
```

```
PS C:\Users\saket\JAVA\Projects\project3\Ch3ProjectQ2SBakshi> java Ch3ProjectQ2_1SBakshi
Methods for cans could be:
getCans(), which returns the number of cans in the machine
addCans(), which adds a number of cans to a machine
buySoda(), which removes a can from the machine
Methods for tokens could be:
getTokens(), which returns how many tokens the machine has
removeTokens(), to empty the machine
buySoda(), with an explicit parameter for number of tokens added
PS C:\Users\saket\JAVA\Projects\project3\Ch3ProjectQ2SBakshi>
```

Exercise 2.2
/* Saket Bakshi, Period 6
Question 2.2 of Ch 3 project. This program declares a class with the methods stated in exercise
2.1.
*/
```java
public class VendingMachine
{
        /** This returns the amount of cans in the machine
        @return the number of cans in the machine
        */
        public int getCans()
        {
                return this.cans;
        }

        /** this adds cans to the machine
        @param cansAdded the number of cans added
```

```
        */
        public void addCans(int cansAdded)
        {
                this.cans = this.cans + cansAdded;
        }

        /**this removes soda for the price of one token added to the machine
        @param cansBought the number of cans bought
        */
        public void buySoda(int cansBought)
        {
                this.cans = this.cans - cansBought;
                this.tokens = this.tokens + cansBought;
        }

        /**this returns the number of tokens in the machine
        @return the number of tokens in the machine
        */
        public int getTokens()
        {
                return this.tokens;
        }

        /**this removes all tokens from the machine
        */
        public void removeTokens()
        {
                this.tokens = 0;
        }
}
```

Exercise 2.3
```
/* Saket Bakshi, Period 6
Question 2.3 of Ch 3 project. This program declares a class with the methods
and instance variables stated in exercise 2.1. Has all comments necessary for javadoc
documentation.
*/

public class VendingMachine
{

        //instance variables
        private int tokens;
```

```java
        private int cans;

        /** This creates an object of the vending machine class that
        has a certain amount of cans that cost 1 token and the number of tokens. It can be used
by methods that
        find the number of cans or tokens in the machine. It also has methods to
        add more cans, buy cans, and remove the coins.
        @param cans the number of initial cans
        @param tokens the number of initial tokens
        */
        public VendingMachine(int cans, int tokens)
        {
                this.cans = cans;
                this.tokens = tokens;
        }

        /** This returns the amount of cans in the machine
        @return the number of cans in the machine
        */
        public int getCans()
        {
                return this.cans;
        }

        /** this adds cans to the machine
        @param cansAdded the number of cans added
        */
        public void addCans(int cansAdded)
        {
                this.cans = this.cans + cansAdded;
        }

        /**this removes soda for the price of one token added to the machine
        @param cansBought the number of cans bought
        */
        public void buySoda(int cansBought)
        {
                this.cans = this.cans - cansBought;
                this.tokens = this.tokens + cansBought;
        }

        /**this returns the number of tokens in the machine
        @return the number of tokens in the machine
```

```
        */
        public int getTokens()
        {
                return this.tokens;
        }

        /**this removes all tokens from the machine
        */
        public void removeTokens()
        {
                this.tokens = 0;
        }
}


Exercise 2.4
/* Saket Bakshi, Period 6
Question 2.4 of Ch 3 project. This program declares a class with the methods
and instance variables stated in exercise 2.1. Has all comments necessary for javadoc
documentation.
*/

public class VendingMachine
{

        //instance variables
        private int tokens;
        private int cans;

        /** This creates an object of the vending machine class that
        has a certain amount of cans that cost 1 token and the number of tokens. It can be used
by methods that
        find the number of cans or tokens in the machine. It also has methods to
        add more cans, buy cans, and remove the coins.
        @param cans the number of initial cans
        @param tokens the number of initial tokens
        */
        public VendingMachine(int cans, int tokens)
        {
                this.cans = cans;
                this.tokens = tokens;
        }

        /** This returns the amount of cans in the machine
```

```java
        @return the number of cans in the machine
        */
        public int getCans()
        {
                return this.cans;
        }

        /** this adds cans to the machine
        @param cansAdded the number of cans added
        */
        public void addCans(int cansAdded)
        {
                this.cans = this.cans + cansAdded;
        }

        /**this removes soda for the price of one token added to the machine
        @param cansBought the number of cans bought
        */
        public void inserToken(int cansBought)
        {
                this.cans = this.cans - cansBought;
                this.tokens = this.tokens + cansBought;
        }

        /**this returns the number of tokens in the machine
        @return the number of tokens in the machine
        */
        public int getTokens()
        {
                return this.tokens;
        }

        /**this removes all tokens from the machine
        */
        public void removeTokens()
        {
                this.tokens = 0;
        }
}
```

Exercise 2.5
/* Saket Bakshi, Period 6
Question 2.5 of Ch 3 project. This program declares a class with the methods
and instance variables stated in exercise 2.1. Has all comments necessary for javadoc
documentation.
*/

```java
public class VendingMachine
{

        //instance variables
        private int tokens;
        private int cans;

        /** This creates an object of the vending machine class that
        has a certain amount of cans that cost 1 token and the number of tokens. It can be used
by methods that
        find the number of cans or tokens in the machine. It also has methods to
        add more cans, buy cans, and remove the coins.
        @param cans the number of initial cans
        @param tokens the number of initial tokens
        */
        public VendingMachine(int cans, int tokens)
        {
                this.cans = cans;
                this.tokens = tokens;
        }

        /** This returns the amount of cans in the machine
        @return the number of cans in the machine
        */
        public int getCans()
        {
                return this.cans;
        }

        /** this adds cans to the machine
        @param cansAdded the number of cans added
        */
        public void fillUp(int cansAdded)
        {
                this.cans = this.cans + cansAdded;
        }
```

```java
        /**this removes soda for the price of one token added to the machine
        @param cansBought the number of cans bought
        */
        public void buySoda(int cansBought)
        {
                this.cans = this.cans - cansBought;
                this.tokens = this.tokens + cansBought;
        }

        /**this returns the number of tokens in the machine
        @return the number of tokens in the machine
        */
        public int getTokens()
        {
                return this.tokens;
        }

        /**this removes all tokens from the machine
        */
        public void removeTokens()
        {
                this.tokens = 0;
        }
}
```

Exercise 2.6

```java
/* Saket Bakshi, Period 6
Question 2.6 of Ch 3 project. This program declares a class with the methods
and instance variables stated in exercise 2.1. Has all comments necessary for javadoc
documentation.
*/

public class VendingMachine
{

        //instance variables
        private int tokens;
        private int cans;

        /** This creates an object of the vending machine class that
        has a certain amount of cans that cost 1 token and the number of tokens. It can be used
by methods that
```

find the number of cans or tokens in the machine. It also has methods to
add more cans, buy cans, and remove the coins.
@param cans the number of initial cans
@param tokens the number of initial tokens
*/
public VendingMachine(int cans, int tokens)
{
        this.cans = cans;
        this.tokens = tokens;
}

/** This returns the amount of cans in the machine
@return the number of cans in the machine
*/
public int getCanCount()
{
        return this.cans;
}

/** this adds cans to the machine
@param cansAdded the number of cans added
*/
public void addCans(int cansAdded)
{
        this.cans = this.cans + cansAdded;
}

/**this removes soda for the price of one token added to the machine
@param cansBought the number of cans bought
*/
public void buySoda(int cansBought)
{
        this.cans = this.cans - cansBought;
        this.tokens = this.tokens + cansBought;
}

/**this returns the number of tokens in the machine
@return the number of tokens in the machine
*/
public int getTokenCount()
{
        return this.tokens;
}

```java
        /**this removes all tokens from the machine
        */
        public void removeTokens()
        {
                this.tokens = 0;
        }
}
```

Exercise 2.7
```java
/* Saket Bakshi, Period 6
Question 2.7 of Ch 3 project. This program declares a class with the methods
and instance variables stated in exercise 2.1. Has all comments necessary for javadoc
documentation.
*/

public class VendingMachine
{

        //instance variables
        private int tokens;
        private int cans;

        /** This creates an object of the vending machine class that
        has a certain amount of cans that cost 1 token and the number of tokens. It can be used
by methods that
        find the number of cans or tokens in the machine. It also has methods to
        add more cans, buy cans, and remove the coins.
        @param cans the number of initial cans
        @param tokens the number of initial tokens
        */
        public VendingMachine(int cans, int tokens)
        {
                this.cans = cans;
                this.tokens = tokens;
        }

        public VendingMachine()
        {
                this.cans = 0;
                this.tokens = 0;
        }
```

```java
/** This returns the amount of cans in the machine
@return the number of cans in the machine
*/
public int getCans()
{
        return this.cans;
}

/** this adds cans to the machine
@param cansAdded the number of cans added
*/
public void addCans(int cansAdded)
{
        this.cans = this.cans + cansAdded;
}

/**this removes soda for the price of one token added to the machine
*/
public void buySoda()
{
        this.cans = this.cans - 1;
        this.tokens = this.tokens + 1;
}

/**this returns the number of tokens in the machine
@return the number of tokens in the machine
*/
public int getTokens()
{
        return this.tokens;
}

/**this removes all tokens from the machine
*/
public void removeTokens()
{
        this.tokens = 0;
}
}
```
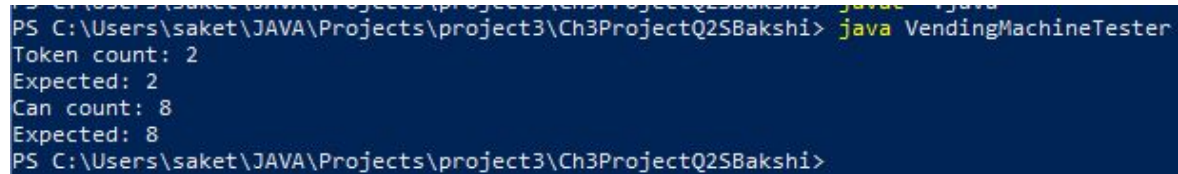
Exercise 2.8
public class VendingMachineTester

```
{
        public static void main(String[] args)
        {
                VendingMachine machine = new VendingMachine();
                machine.addCans(10); // Fill up with ten cans
                machine.buySoda();
                machine.buySoda();
                System.out.print("Token count: ");
                System.out.println(machine.getTokens());
                System.out.println("Expected: 2");
                System.out.print("Can count: ");
                System.out.println(machine.getCans());
                System.out.println("Expected: 8");
        }
}
```

```
PS C:\Users\saket\JAVA\Projects\project3\Ch3ProjectQ2SBakshi> java VendingMachineTester
Token count: 2
Expected: 2
Can count: 8
Expected: 8
PS C:\Users\saket\JAVA\Projects\project3\Ch3ProjectQ2SBakshi>
```

Exercise 2.9
/* Saket Bakshi, Period 6
Question 2.9 of Ch 3 project. This program declares a class with the methods
and instance variables stated in exercise 2.1. Has all comments necessary for javadoc
documentation.
*/

public class VendingMachine
{

        //instance variables
        private int tokens;
        private int cans;

        /** This creates an object of the vending machine class that
        has a certain amount of cans that cost 1 token and the number of tokens. It can be used
by methods that
        find the number of cans or tokens in the machine. It also has methods to
        add more cans, buy cans, and remove the coins.
        @param cans the number of initial cans
        @param tokens the number of initial tokens
        */

```java
public VendingMachine(int cans)
{
        this.cans = cans;
        this.tokens = 0;
}

public VendingMachine()
{
        this.cans = 0;
        this.tokens = 0;
}

/** This returns the amount of cans in the machine
@return the number of cans in the machine
*/
public int getCans()
{
        return this.cans;
}

/** this adds cans to the machine
@param cansAdded the number of cans added
*/
public void addCans(int cansAdded)
{
        this.cans = this.cans + cansAdded;
}

/**this removes soda for the price of one token added to the machine
*/
public void buySoda()
{
        this.cans = this.cans - 1;
        this.tokens = this.tokens + 1;
}

/**this returns the number of tokens in the machine
@return the number of tokens in the machine
*/
public int getTokens()
{
        return this.tokens;
}
```

```java
/**this removes all tokens from the machine
*/
public void removeTokens()
{
        this.tokens = 0;
}
}
```