Java ArrayList

Basic Type Array Problems

- Need a for loop to do everything
- Hard to copy an array into another
- Hard to remove items
- Need to create with a initial size

Java ArrayList

- A Java built in data structure collection
- Also a container for a list of same typed object
- A Java generic template
- Not for primitive type
- Provided way more functions

ArrayList Format

- ArrayList<ObjectType> variableName = new ArrayList<ObjectType>();
- <> represent as this is a Java generic template collection
- ObjectType defines what object can be put into array list

Example ArrayList

```
public class MyProgram {
        public static void main(String[] args) {

            // create an int array list
            ArrayList<Integer> list = new ArrayList<Integer>();

        }
}
```

Access an ArrayList

- Access an element in arraylist is like access them in array
- Use .add(Object target) to add at tail of list
- Use.remove(Object target) to remove an object
- Use .get(int index) to access element
- Use .set(int index, Object target) to override an element
- When arraylist is created, this is also empty

Add item in ArrayList

```
public class MyProgram {
        public static void main(String[] args) {

            // create an int array list
            ArrayList<Integer> list = new ArrayList<Integer>();
            Integer input = 10;
            list.add(input);

        }
}
```

ArrayList size

```
public class MyProgram {
        public static void main(String[] args) {

            // create an int array list
            ArrayList<Integer> list = new ArrayList<Integer>();

            int currentSize = list.size();
            list.add(10);
            list.add(12);

            currentSize = list.size();

        }
}
```

Remove by index in ArrayList

```
public class MyProgram {
        public static void main(String[] args) {

// create an int array list
ArrayList<Integer> list = new ArrayList<Integer>();

int currentSize = list.size();
Integer input1 = 10;
Integer input2 = 12;
list.add(input1);
list.add(input2);

list.remove(0);

        }
}
```

Remove by item in ArrayList

```
public class MyProgram {
        public static void main(String[] args) {

            // create an int array list
            ArrayList<Integer> list = new ArrayList<Integer>();

            int currentSize = list.size();
            Integer input1 = 10;
            Integer input2 = 12;
            list.add(input1);
            list.add(input2);

           list.remove(input1);

        }
}
```

Go through ArrayList

```
public class MyProgram {
        public static void main(String[] args) {

                // create an int array list
                 ArrayList<Integer> list = new ArrayList<Integer>();

                for ( Integer item : list) {
                        System.out.println(item);
                }

        }
}
```