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CS101-02
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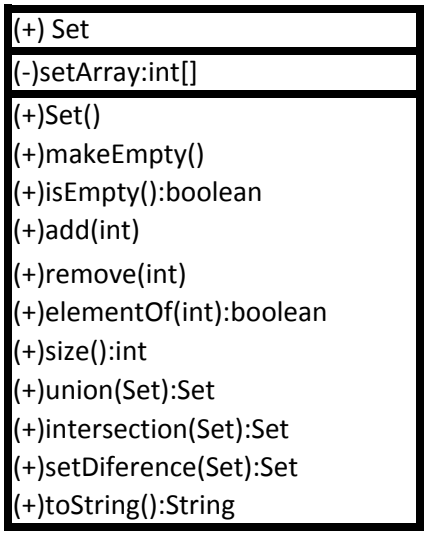

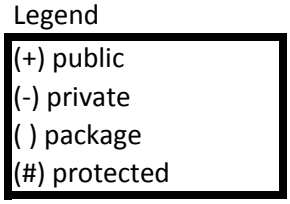

Algorithm for Set:

```
Set()
        setArray <-- new int [0]


makeEmpty()
        this.setArray <--  new int[0]


isEmpty()
        if setArray.size() == 0
                return true
        else
                return false

add(int addThis)
        if ( !this.elementOf(int addThis))
                int [] tempArray <-- new int [this.size() + 1]

                for (int i = 0; i < this.size(); i++)
                        tempArray[i] = this.setArray[i]
                this.setArray <-- tempArray
                this.setArray[size() - 1] <-- addThis

                for (int run = 0; run < size() - 1; run++)
                        for (int j = 0; j < size() - 1; j++)
```

```
                                        if (setArray[j] > setArray[j + 1])
                                                int temp <-- setArray[j]
                                                this.setArray[j] <-- this.setArray[j + 1]
                                                this.setArray[j + 1] <-- temp

remove(int removeThis)
        if ( this.elementOf(removeThis))
                for (int i = 0; i < this.size() - 1; i++)
                        if (this.setArray[i] > removeThis)
                                this.setArray[i] <-- this.setArray[i + 1]

                int [] tempArray <-- new int [this.size() - 1]
                for (int j = 0; j < tempArray.length; j++)
                        tempArray[i] <-- this.setArray[i]

                this.setArray <-- tempArray

elementOf(int checkThis)
        for (int i = 0; i < this.size(); i++)
                if (this.setArray[i] == checkThis)
                        return true

         // will only reach this point if the element is not in the array
        return false

size()
        return this.setArray.length


union(Set otherSet)
        Set newSet <-- new Set()
        for (int i = 0; i < this.size(); i++)
                newSet.add(this.setArray[i])

        for (int j = 0; j < otherSet.size(); j++)
                newSet.add(otherSet.setArray[j])

        return newSet


intersection(Set otherSet)
        Set newSet <-- new Set()
        int currentNum
        for (int i = 0; i < this.size(); i++)
                currentNum <-- this.setArray[i]
                if (otherSet.elementOf(currentNum))
```

```
                                        newSet.add(currentNum)
        return newSet


setDifference(Set otherSet)
        Set newSet <-- new Set()
        int currentNum
        for (int i = 0; i < this.size(); i++)
                currentNum <-- this.setArray[i]
                if  !(otherSet.elementOf(currentNum))
                        newSet.add(currentNum)
        return newSet


toString()
        String output <-- new String("{")
        for (int i = 0; i < this.size(); i++)
                if (i == this.size() -1)
                        output += "" + this.setArray[i]
                else
                        output += "" + this.setArray[i] + ", "
        output += "}"
        return output
```