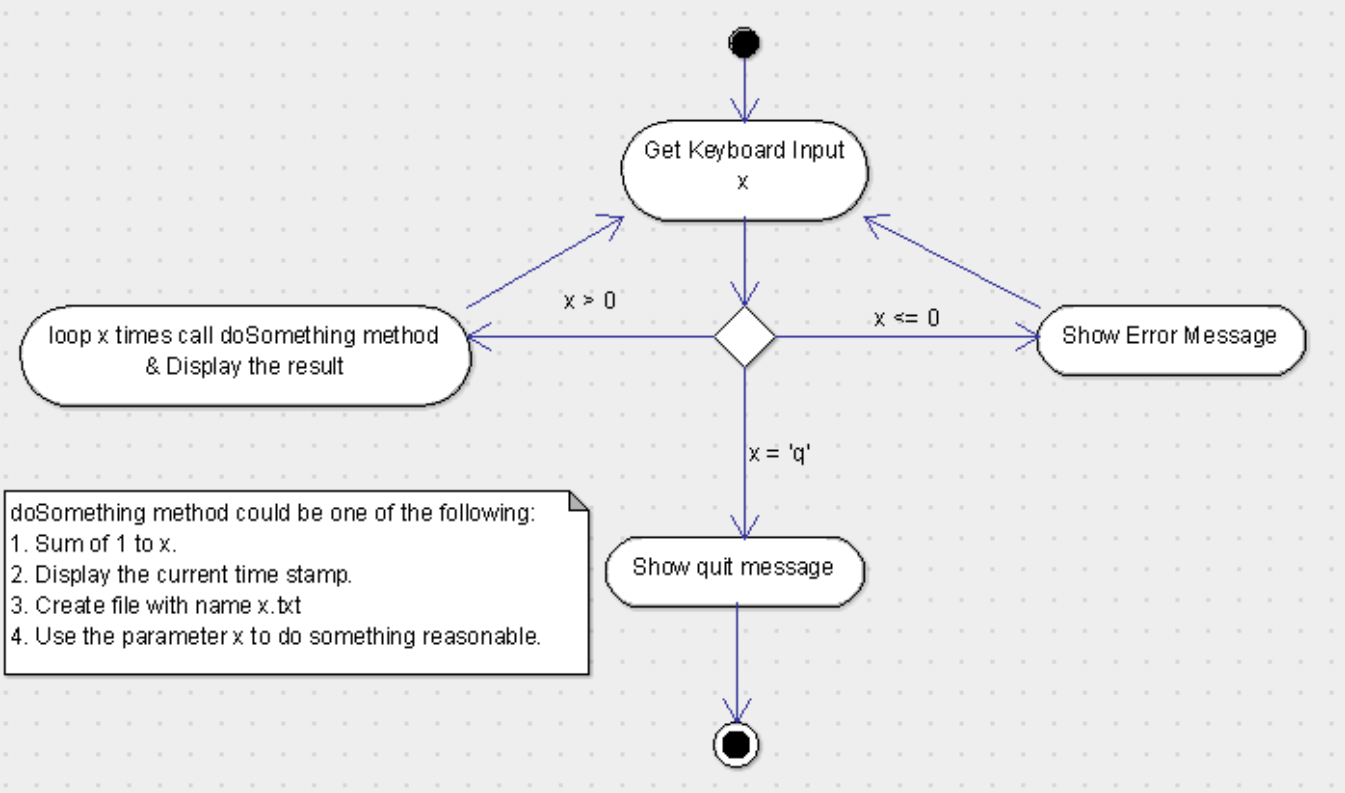
Assignment 1

1. **What is JDK? JRE? JVM?**
   JDK is the Java Development Kit, JRE is the Java Runtime Environment, and JVM is the Java Virtual Memory.
2. **What is java compiler?**
   The java compiler takes the class code and converts it to bytes for usage in the JVM.
3. **Why is java platform independent?**
   The java compiler translates the class code into bytes for program execution by the JVM which can then execute the code regardless of the platform.
4. **What is IDE? Why is it important for developers?**
   The integrated development environment combines developer's tools into a single GUI for easy use by developers. For example, an IDE can use different colors to easily highlight code depending on the meaning of the code which makes it easier to read/write as a developer.
5. **Is java case sensitive?**
   Yes.
6. **What do the following key words do?**
   static, final, public, private, void, null, package, Class, new
   Static: modifier that ensure
   Final: Access modifier that ensures an attribute is constant and a class/method can't be inherited
   Public: access modifier that ensures attribute or method is accessible anywhere
   Private: access modifier used to ensure that attribute or method can only be accessed within class declared
   Void: keyword that specifies no return value for a method
   Null: this simply means there is no value currently assigned to that attribute
   Package: contains related classes, import a package to use those classes
   Class: abstraction of a real life entity for the purposes of an object oriented program where the class represents a template for an object, its attributes, and its methods
   New: keyword used to declare something on the heap i.e. a new object
7. **What is primitive type and reference type?**
   A reference type is a reference to an object while a primitive type is one of 8 built in data types in java that don't represent an object but a type of data i.e. integer
8. **Is parameter passed by value or reference?**
   Passed by value.
9. **What is the output: System.out.println(1 > 0 : "A":"B");**
   It prints the capital letter A because 1 is more than 0.
10. **How to define constants in java?**
    The final keyword is used on an attribute to ensure that it can't be modified which means that it's a constant.
11. **What is String? Is it primitive type?**
    String is not a primitive type, it's a reference type or an object.
12. **How to check if a String is representing a number?**

You use the .intValue() method on the String object.

13. **Write a program to implement the following activity diagram:**

I did not include the main method or a class for the following code answers for this pdf submission but any methods would need to be in that class and the code to execute would be in the main method.




```
		Scanner scan = new Scanner(System.in);
		int x = scan.nextInt();
		int sum = 0;
		if (x <= 0) { // throw error if x <=0 with custom throw
			throw new ArithmeticException("Error: The number you entered was
less than or equal to 0!");
		} else {
			for (int i = 0; i < x; i++) {
				sum = doSomething(i); // call doSomething method with
parameter i which is number from 0 to x
			}
			System.out.println(sum); // print out sum which is set sum of 1
to x calculated and returned by method doSomething
		}


		public int doSomething(int i) {
			int currSum = 0;
			for (int y = 0; y < i; y++) {
				currSum += y;
			return currSum;
			}
```

```
}
```

14. Write a program to merge two array of int.

```
int[] arr1 = {1, 2, 3, 4, 5};
int[] arr2 = {6, 7, 8, 9, 10};

int newLength = arr1.length + arr2.length;
int[] mergeArr = new int[newLength];
for (int i = 0; i < arr1.length; i++) {
	mergeArr[i] = arr1[i];

}
int z = 0;
for (int y = arr1.length; y < newLength; y++) {
	mergeArr[y] = arr2[z];
	z++;
}
for (int e: mergeArr) {
	System.out.println(e);
	}
```

15. Write a program to find the second largest number inside an array of int.

```
int[] arr = {1, 3, 5, 10, 7, 9, 11};
int max = 0;
int max2 = 0;

for (int i = 0; i < arr.length; i++)
{
	if (arr[i] > max) {
		max = arr[i];
	}
}
for (int i = 0; i < arr.length; i++)
{
	if (arr[i] > max2 && arr[i] < max) {
		max2 = arr[i];
	}
}

System.out.println(max);
System.out.println(max2);
```