# Please review the following code

The codes intent is to have a class that takes a number and returns the roman numberal string.

You task is to code review the code and identify issues that you would like to change keeping in mind coding best practices.

package converters;  
  
public class RomanNumber  
{  
 private int number;

//Sonar Code Review Comment : Rename this constant name to match the regular expression '^[A-Z][A-Z0-9]\*(\_[A-Z0-9]+)\*$'.  Like MAX\_VALUE  
 private static final int maxValue = 3000;  
 public RomanNumber(int number) throws Exception

//Sonar Code Review Comment : Define and throw a dedicated exception instead of using a generic one.  
 {  
 if(number > maxValue) throw new Exception("RomanNumber only supports numbers up to 3000");

//Sonar Code Review Comment : Define and throw a dedicated exception instead of using a generic one.  
 this.number = number;  
 }  
  
 public void SetNumber(String number) throws Exception

//Sonar Code Review Comment : Define and throw a dedicated exception instead of using a generic one.  
//Sonar Code Review Comment : Rename this method name to match the regular expression '^[a-z][a-zA-Z0-9]\*$'.  Method name starts with lower case  
 {  
 this.number = Integer.parseInt(number);  
 if(this.number > maxValue) throw new Exception("RomanNumber only supports numbers up to 3000");  
 //Sonar Code Review Comment : Define and throw a dedicated exception instead of using a generic one.  
  
 }  
  
 public String convert()  
 {  
 String result = "";  
  
 try {  
 int thousands = this.number / 1000;  
 result += times(thousands, "M");  
 int hundreds = this.number / 100 % 10;  
 result += times(hundreds, "C", "D", "M");  
 int tens = this.number / 10 % 10;  
 result += times(tens, "X", "L", "C");  
 int ones = this.number % 10;  
 result += times(ones, "I", "V", "X");  
 } catch (Exception ex){

//Sonar Code Review Comment: Either log or rethrow this exception.  
 System.out.println("An error occured");

//Sonar Code Review Comment: Replace this usage of System.out or System.err by a logger.   
 }

// Return statement is missing  
 }  
  
 private String times(int number, String character)

//Sonar Code Review Comment: Remove this unused method parameter "number". Because this method using this.number not local variable  
 {  
 String result = "";  
  
 for(int i = 0; i < this.number; i++)  
 {  
 result += character;  
 }  
 return result;  
 }  
 private String times(int number, String o, String f, String t) throws Exception

//Sonar Code Review Comment: Define and throw a dedicated exception instead of using a generic one.

//Sonar Code Review Comment: The Cyclomatic Complexity of this method "times" is 17 which is greater than 10 authorized.  
 {  
 switch(number)  
 {  
 case 0:  
 return "";  
 case 1:  
 case 2:  
 case 3:  
 return times(number, o);  
 case 4:  
 return o + f;  
 case 5:  
 case 6:  
 case 7:  
 case 8:  
 return f + times(number - 5, o);  
 case 9:  
 return o + t;  
 default:  
 throw new Exception("Only single digits allowed - not " + number);

//Sonar Code Review Comment: Define and throw a dedicated exception instead of using a generic one  
 }  
 }  
}

1-SetNumber() method is not required, because we are passing the input number in class constructor which set the value to instance variable number.

2- In class constructor Exception has thrown which is not good practice, we can throw any Custom exception which can take proper action and log the error message, and User can know in better manner what is the error .

3- Change in method times(int number, String character){

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for(int i = 0; i < this.number; i++)

{

result += character;

}

……………………}

Use local method number variable not instance number variable with this key world,remove this key world