CMSC 331 - Principles of programming language

Homework-5

1. Explain the following parameter passing methods and provide an example for each:
   - Pass by value
   - Pass by reference

2. i) Which is more efficient in programming, passing by value or passing by reference, and why?
   ii) What sort of parameter passing is going on here?
   a.
```
void increment(int value) {
value = value + 1;
}
int main() {
int num = 5;
increment(num);
return 0;
}
```
   b.
```
void modify(int &x) {
 x = x + 5;
}
int main() { i
int a = 10;
modify(a);
return 0;
}
```

3. Consider the function:

```
defn sumSquares n =
        if n < 0 then 0
        else n^2 + sumSquares(n - 1)
```

   Show the sequence of stack allocations in the execution of sumSquares(4).

4. Define concurrency and explain its importance in modern computing.
   What are the typical issues one might encounter in concurrent programming?

5. What happens if a monitor procedure calls another procedure in the same monitor?

6. a) Explain the concept of exception handling and its significance.
   b) What is wrong with the given block of code and how to handle it?
   Rewrite the block of code how you handled it. You don't have to execute it.

```
public class Main {
  public static void main(String[] args) {
    int dividend = 10;
    int divisor = 0;
    int result = dividend / divisor;
    System.out.println("Result: " + result);
      }
}
```