SAT: Domain and Structural Testing

1. Write domain (specification-based) and structural tests for the following procedure:

```java
public int play(int left, int right) {
    int ln = left;
    int rn = right;
    if (ln > 21)
        ln = 0;
    if (rn > 21)
        rn = 0;
    if (ln > rn)
        return ln;
    else
        return rn;
}
```

```
input partitions: negative, [0,21], > 21
output partitions: left, right, max(left,right), 0
Partition and boundary testcases:
22,21 -> right = 21
21,22 -> left = 21
21,21 -> max(left,right) = 21
22,22 -> 0
(can be expanded with other testacses from partitions or boundaries)
```

2. Write domain (specification-based) and structural tests for the following procedure:

```java
public String sameEnds(String string) {
  int length = string.length();
  int half = length / 2;
  String left = "";
  String right = "";
  int size = 0;
  for (int i = 0; i < half; i++) {
    left = left + string.charAt(i);
    right = string.charAt(length - 1 - i) + right;
    if (left.equals(right)) {
      size = left.length();
    }
  }
  return string.substring(0, size);
}
```

```
input partitions: null, empty, single, multiple (duplicates, case)
output partitions: error, empty, single, multiple
Partition and boundary testcases:
null -> error
empty/single("a") -> empty
"aa" -> "a"
"aba" -> "a"
"Aa" -> empty
"abba" -> "ab"
"abc" -> empty
"ababcba" -> "ab"
"ABABCBA" -> "AB"
"ababcbA" -> empty
(can be expanded with other testacses from partitions or boundaries)
```