Lab Final Exam

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Algorithm

```
public class PrimeChecker {

    public static boolean isPrime(int n) {

        if (n <= 1) {

            return false;

        }

        for (int i = 2; i <= Math.sqrt(n); i++) {

            if (n % i == 0) {

                return false;

            }

        }

        return true;

    }

}
```

Equivalence Partitioning

Partition	**Description**	**Test Case**	**Input**	**Expected Output**
Negative numbers	n < 0	Test with a negative number	-1	false
Non-prime numbers	n is not prime	Test with zero	0	false
Non-prime numbers	n is not prime	Test with one	1	false
Prime numbers	n is prime	Test with a small prime	2	True

Prime numbers	n is prime	Test with a larger prime	17	true

Boundary Value Analysis

Boundary	**Description**	**Test Case**	**Input**	**Expected Output**
Lower boundary	n = 0	Test with zero	0	False
Lower boundary	n = 1	Test with one	1	False
Smallest prime number	n = 2	Test with a small prime	2	True
Just above a prime number	n = 4	Not included in tests	4	False
Larger prime number	n = 17	Test with a larger prime	17	True

Test Cases

Test Case ID	**Description**	**Input**	**Expected Output**	**Partition**	**Boundary**	**Actual Outcome**	**Status**
TC1	Test with a negative number	-1	False	Negative numbers	N/A	False	PASS
TC2	Test with zero	0	False	Non-prime numbers	Lower boundary	False	PASS
TC3	Test with one	1	False	Non-prime numbers	Lower boundary	False	PASS

TC4	Test with a small prime number	2	True	Prime numbers	Smallest prime number	True	PASS
TC5	Test with a larger prime number	17	True	Prime numbers	Larger prime number	True	PASS
TC6	Test with a Non-Prime Number	4	False	Non-Prime numbers	Non-Prime numbers	False	PASS