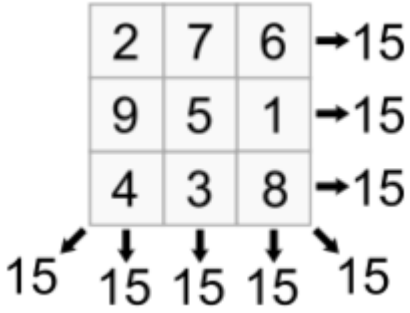
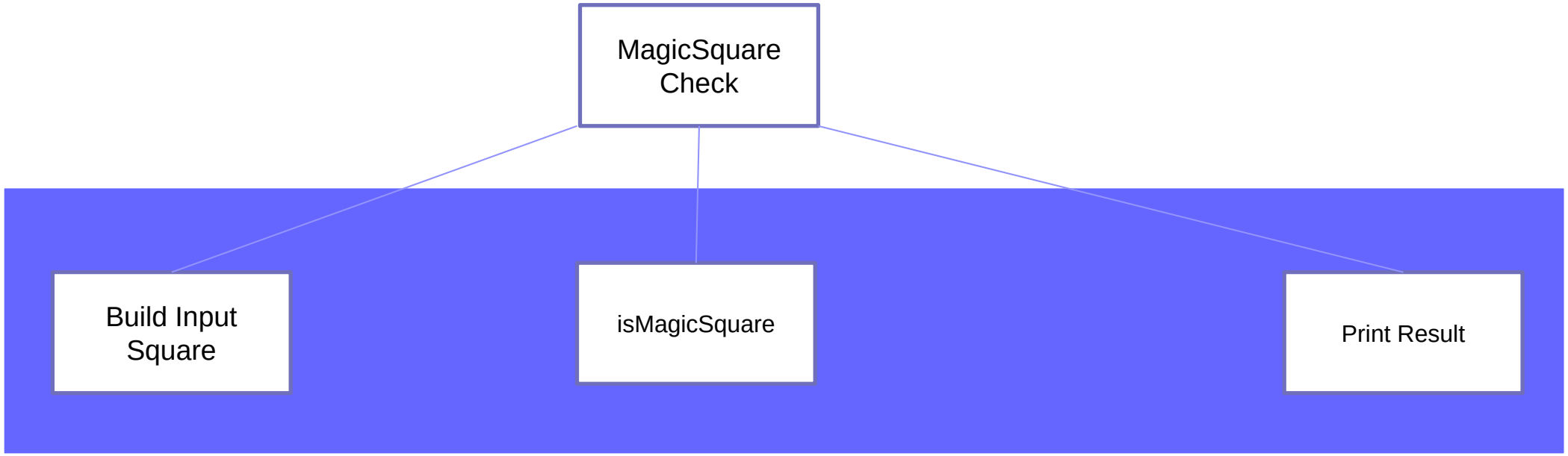
Lab 4 Discussion

Magic Square

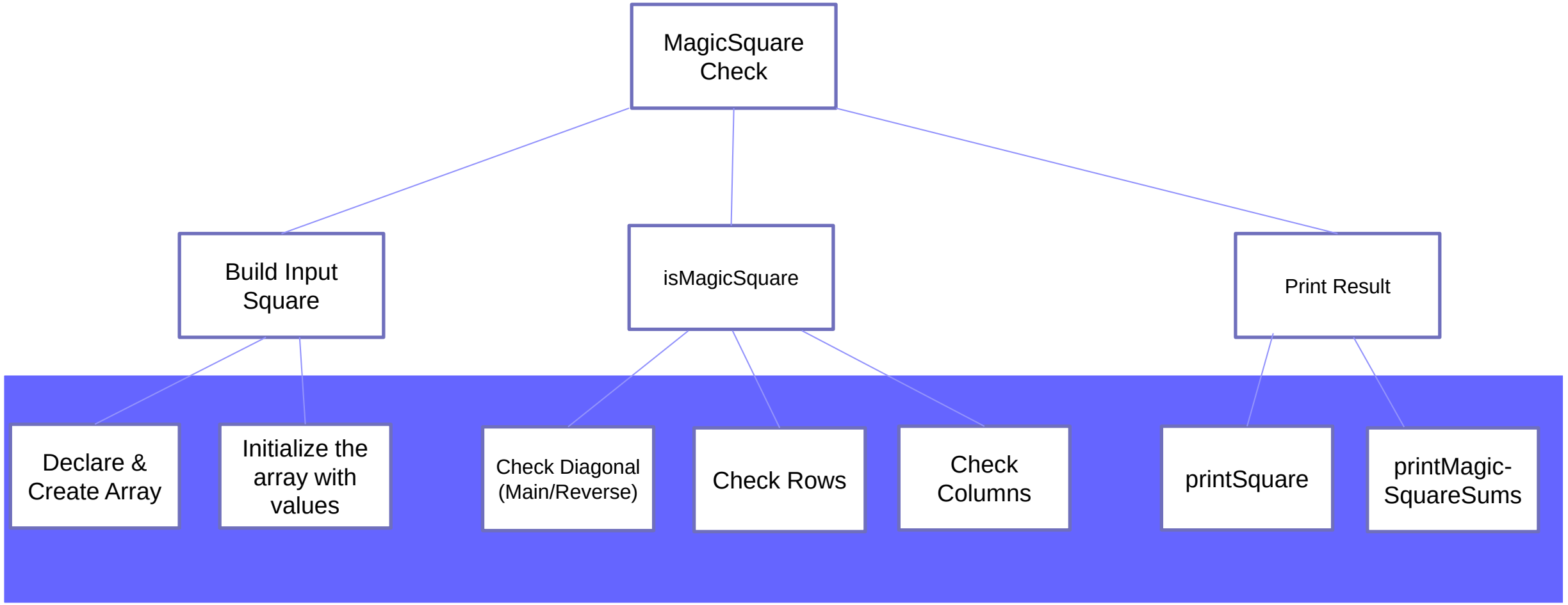


A magic square is a square matrix in which the sum of every row, every column, and both diagonals is the same.

Magic Square Validation – 1st and 2nd levels Refinements



Magic Square Validation – 1st, 2nd ,and 3rd levels refinements



Sample input file

magicText.txt

```
3
8  1  6
3  5  7
4  9  2
7
30  39  48   1  10  19  28
38  47   7   9  18  27  29
46   6   8  17  26  35  37
5   14  16  25  34  36  45
13  15  24  33  42  44   4
21  23  32  41  43   3  12
22  31  40  49   2  11  20
```

Sample output file

```
----jGRASP exec: java MagicSquareTest

***** Square 1 *****
8 1 6
3 5 7
4 9 2
***** Square 1 *****

Sum of row 0 is: 15
Sum of row 1 is: 15
Sum of row 2 is: 15

Sum of column 0 is: 15
Sum of column 1 is: 15
Sum of column 2 is: 15

The sum of the main diagonal is: 15

The sum of the other diagonal is: 15

Is it a magic square: true
```

Sample code to compute sum for row

```
// Sample to compute sum for row
private int sumMagicRow(int row) {
    int sum = 0;
    for (int c = 0; c < square.length; c++) {
        sum += square[row][c];
    }
    return sum;
}
```