CS 111
writing functions
Model for function

A function is coded with the following model:

```c++
TITLE LINE {
    BLOCK OF C++ CODE
}
Example:

double square(double num) {
    return num * num;
}
```
Model for title line

• **RETURN_TYPE FUNCTION_NAME** (PARAMETER_LIST)
  • The parameter list is a comma-separated list giving the parameters (input data)
  • Each parameter is specified by a variable declaration with its type and the name that will be used for it in the function code block

• Examples:
  • int max(int a, int b)
  • char firstLetter(string name)
  • bool coPrime(int x, int y)
Creating title lines

1. What type of return value does it calculate?
2. How many parameters does it use?
3. What are the types of those parameters?
Example 1

```cpp
int main()
{
    string first = "John", last = "Doe";
    string full = fullName(first, last);
    cout << "Full name: " << full << endl;
    return 0;
}
```

- What is the title line for `fullName()`?
- Write the function.
Example 2

```cpp
int main(){
    int a = 3, b = 4, c = 5;
    double average = averageThreeNums(a, b, c);
    cout << average << endl;
    return 0;
}
```

• What is the title line for `averageThreeNums()`?

• Write the function.
Example 3

```c
int main()
{
    int x = 0, y = 1, z = 2;
    x = maximum(x + z, y - x); // sets x as maximum value
    cout << x << endl;
    return 0;
}
```

- What is the title line for `maximum()`?
- Write the function.
Example 4

```c
int main(){
    int n = 19836;
    cout << lastDigit(n) << endl;
    return 0;
}
```

• What is the title line for `lastDigit()`?
• Write the function.
Example 5

```c
int main()
{
    double b = 1.9;
    print(sqrt(b), rand());
    return 0;
}
```

- What is the title line for `print()`?
- Write the function.
int rollDie() {
    int roll = rand() % 6 + 1;
    return roll;
}

int main() {
    srand(time(0));
    int roll = rand() % 6 + 1;
    cout << roll << endl;
    for(int i = 1; i <= 5; i++){
        roll = rand() % 6 + 1;
        cout << roll << " ";
    }
    return 0;
}
int main() {
    int size1, size2;
    cout << "I will print two squares for you.\n";
    cout << "Size for first? ";
    cin >> size1;
    cout << "Size for second? ";
    cin >> size2;

    for(int r = 1; r <= size1; r++){
        for(int c = 1; c <= size1; c++){
            cout << "*";
        }
        cout << endl;
    }

    for(int r = 1; r <= size2; r++){
        for(int c = 1; c <= size2; c++){
            cout << "*";
        }
        cout << endl;
    }

    return 0;
}

void printSquare(int dimension){
    for(int r = 1; r <= dimension; r++){
        for(int c = 1; c <= dimension; c++){
            cout << "*";
        }
        cout << endl;
    }
}

int main() {
    int size1, size2;
    cout << "I will print two squares for you.\n";
    cout << "Size for first? ";
    cin >> size1;
    cout << "Size for second? ";
    cin >> size2;

    printSquare(size1);
    printSquare(size2);

    return 0;
}