



Functions

- Exercises
- Void Functions Section 5.2
- Exam October 22.

Homework

- Makeup Program 1, page 149, due 10-12 by 5:00 pm.

Hand in: email to ruttan@cs.kent.edu with the subject: 10061 Submission Homework 2

- fabs(x) calculates the absolute value of the variable x
- sqrt(x) calculates the square root of the variable x
- #Include <cmath>

[void functions]

- Some functions do not return a value. For example functions that write to a file or write to the screen.
- For example, write a function to print out a triangle of with n row of dots that looks like

```
    0
   0 0
  0 0 0
 0 0 0 0
0 0 0 0 0
```


void functions

- Since there is no value that needs to be returned we call the use the label **void** to indicate that no value is returned to the calling program.
- `void print_triangle(int n);`
- Describe in words what the functions does!
 - What is the main action?
 - What are the subactions

The main loop

- ```
while (line_count < n){
 print spaces
 print letters
 line_count=line_count+1;
}
```
- How many spaces?
- How many letters?

# The first subloop

```
■ while (line_count < n){
 int spaces=0;
 while (spaces<line_count-1){
 cout << " ";
 spaces=spaces+1;
 }
 print letters;
 line_count=line_count+1;
}
```

# The second subloop

```
■ while (line_count <=n){
 int spaces=n-line_count;
 while (spaces>0){
 cout << " ";
 spaces=spaces+1;
 }
 int letters=0;
 while (letters < line_count){
 cout << "o ";
 letters=letters+1;
 }
 cout << endl;
 line_count=line_count+1;
}
```

# The Function

```
void pretty_triangle1(int n){
 int line_count=1;
 while (line_count <=n){
 int spaces=n-line_count;
 while (spaces>0){
 cout << " ";
 spaces=spaces-1;
 }
 int letters=0;
 while (letters < line_count){
 cout << "o ";
 letters=letters+1;
 }
 cout << endl;
 line_count=line_count+1;
 }
}
```

Complete program

# HomeWork

- Write a function to print out a triangle with n lines that looks like this

```
o o o o o
o o o o
o o o
o o
o
```

- Combine this function together with the function `pretty_triangle1` in a program that will ask the user for a number of lines and print out a set of n dots the pattern below. The program is due in class on Oct 20. Email the program to me at [ruttan@cs.kent.edu](mailto:ruttan@cs.kent.edu) with the subject line 10061 submission Homework 3.

```
o
o o
o o o
o o
o
```