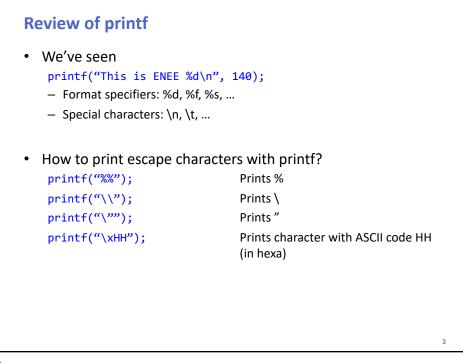
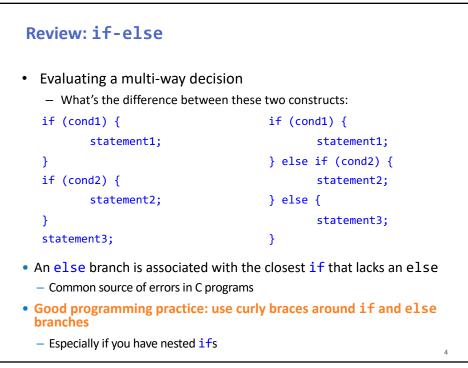
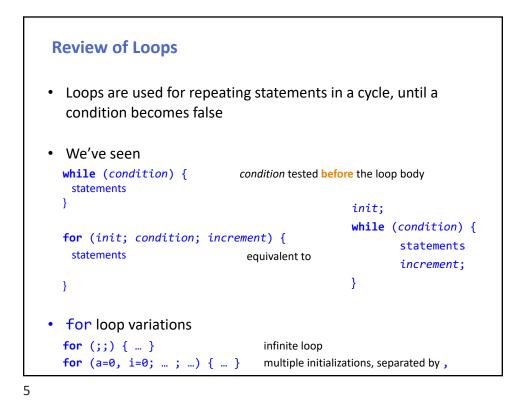


Today's Lecture	
 Where we've been Scalar data types (int, long, float, double, char) Basic control flow (while and if) Functions Random number generation Arrays and strings Variable scope Header and source files 	
 Where we're going today Other control flow statements Loop invariants 	
 Where we're going next – File I/O (unbuffered) 	2



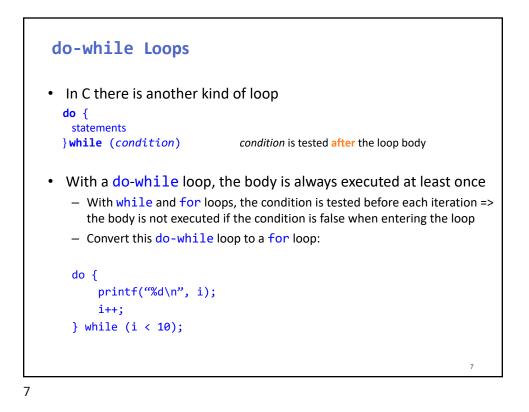


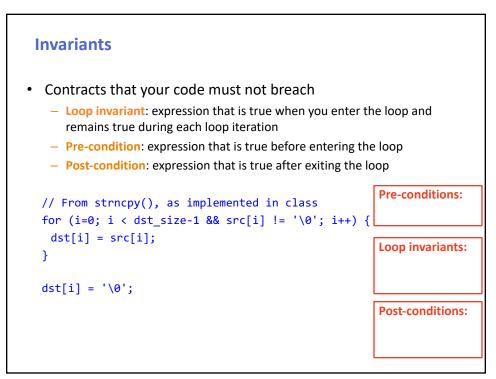


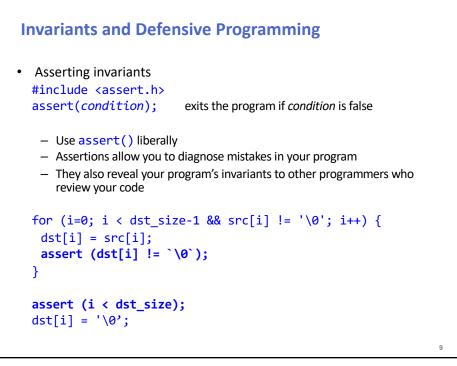
```
Reading Files Line-by-Line
Needed for Project 2

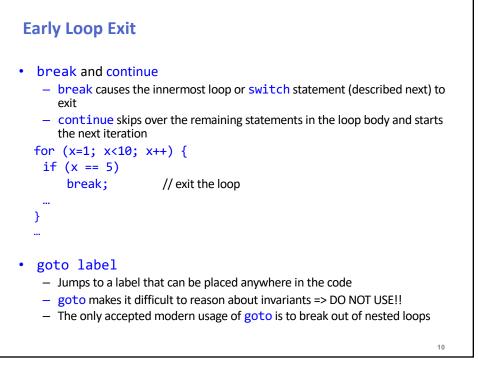
    We've seen: getchar(), scanf()

  Reading a file line-by-line:
  #include <stdio.h>
  char line[MAX_LINE];
  FILE *file_in, *file_out;
                                                  variables representing the files
  file_in = fopen("input_file.txt", "r");
                                                  open file for reading
  file_out = fopen("output_file.txt", "w");
                                                  open file for writing
  if (file in == NULL) {
                                                  fopen() failed
   printf ("Could not open the input_file.txt file.\n");
      exit (-1);
                                                  also do this check for file_out
  }
  while (fgets(line, MAX_LINE, file_in) != NULL) { read a line from file_in
     fprintf (file_out, "%s", line);
                                                  write a line to file_out
  }
  fclose(file_in); fclose(file_out);
```









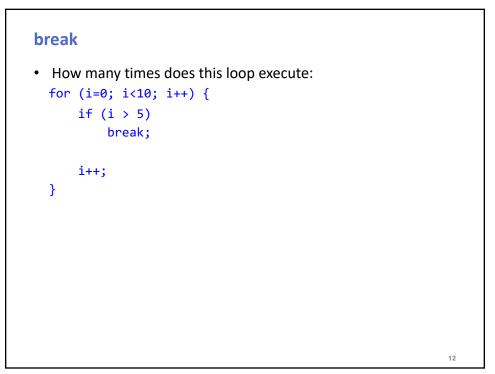
continue

• How many times does this loop execute:

```
for (i=0; i<10; i++) {
    if (i > 5)
        continue;
```

i++;

}



break and continue

• How many times does this loop execute:

```
for (i=0; i<10; i++) {
    if (i < 5)
        continue;</pre>
```

```
if (i % 2)
break;
```

}

The switch Statement	
<pre>• We've seen if (a == 1 a == 2) { printf ("one-two"); } else if (a==3) { printf ("three"); } else { printf ("other"); } }</pre>	 The switch statement implements a multi-way decision switch (a) { case 1: case 2: printf ("one-two"); break; case 3: printf ("three"); break; default: printf ("other"); }
 Note: switch tests whether an constant integer values 	n expression matches a set of

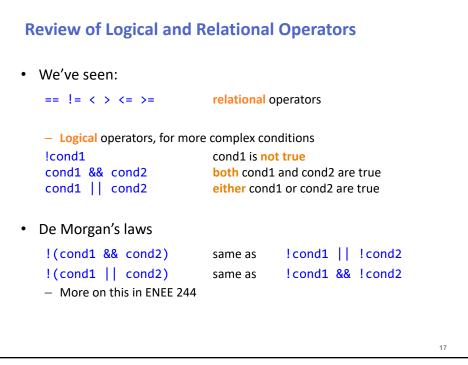
switch

```
• What does this print out:
  int a = 4;
int b = 5;
  switch (a) {
  case 1:
  case 2:
  case 3:
   b++;
   break;
  case 4:
  case 5:
   b += 2;
  case 6:
   b *= 2;
   break;
  default:
   b--;
    break;
  }
  printf("%d\n", b);
```

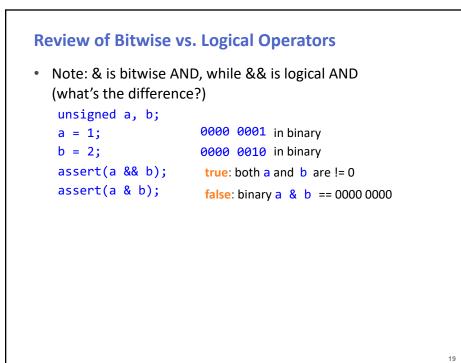
15

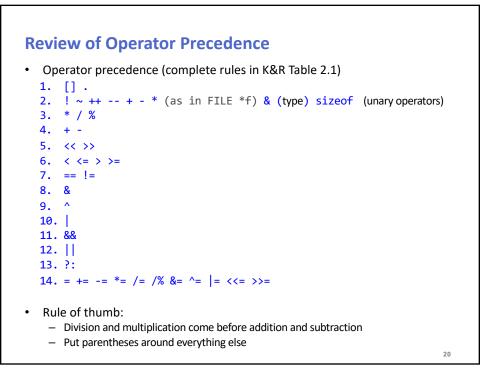
Conditional Expressions
• We've seen
if (a > 10) {
 b = 1;
 } else {
 b = 2;
 }
• Conditional expression
 b = (a > 10) ? 1 : 2;

16



	of Truth \	alues			
• We've	seen: truth	values			
– The	results of rela	ational operato	ors can be ass	igned to varial	bles
		ese variables is in		-	
		any integer othe	-		ue
int a	= (1==0);	a is	0		
int b	= !a;	b is	1		
V					
— YOU	can apply log	ical operators	to these varia	ables	
– rou	can apply log	ical operators	to these varia	ibles	
– YOU	can apply log	ical operators	to these varia	ibles	
– You	b	ical operators	to these varia !b	a && b	a b
					a b a OR b
		!a	!b	a && b	
а	b	la NOT a	!b NOT b	a && b a AND b	a OR b
a 0	b 0	<mark>!a</mark> NOT a 1	lb NOT b 1	a && b a AND b O	a OR b O
a 0 0	b 0 1	la NOT a 1 1	!b NOT b 1 0	a && b a AND b 0 0	a OR b O 1





Review of Lecture

• What did we learn?

