

Computer Science & Engineering 150A

Problem Solving Using Computers – Laboratory

Lecture 07 - Conditions

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(Adapted from Derrick Stolee, Lin Liu & Shuai Xie)

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Announcement: CodeLab assignment

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if else

switch

- The 3rd CodeLab assignment

"CodeLab Assignment-3"

Due: 23:59, Mar 7th

structure: if...else if...else

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if else

switch

```
if ( logical expression 1)
{
    executable statement 1;
    ...
}
else if ( logical expression 2)
{
    executable statement 2;
    ...
}
else
{
    executable statement 3;
    ...
}
```

Example: if...else if...else

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if else

switch

```
if ( grade < 80 )
{
    printf("You got C");
}
else if ( grade < 90)
{
    printf("You got B");
}
else
{
    printf("You got A");
}
```

Comparison: if...if...if

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if else

switch

```
if ( grade < 80 )  
{  
    printf("You got C");  
}  
if ( grade >= 80 && grade < 90)  
{  
    printf("You got B");  
}  
if ( grade >= 90)  
{  
    printf("You got A");  
}
```

Deficiency: Always need to compare three times.

Structure: Multiple condition expression

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if else

switch

```
if ( ( logical expression 1) && ( logical  
expression 2) && ( logical expression 3 ) )  
{  
    executable statement;  
    ...  
}
```

Example: Multiple condition expression

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if else

switch

```
if ( ( mpg > 25 ) && ( safety > 99 ) && ( price <
20000 ) )
{
    printf("A nice car!");
    ...
}
```

```

if ( logical expression )
{
    if ( logical expression )
    {
        executable statement;
        ...
    }
    else
    {
        executable statement;
        ...
    }
}

```


Nested if : Example

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if else

switch

```
if ( AverageTemperature > 70 )
{
    if ( NumRainDays > 150 )
        printf("Tropical rainforest climate");
    else if ( NumRainDays > 50 )
        printf("Semi-tropical climate");
    else
        printf("May be tropical desert climate");
}
```

```
switch ( controlling_variable )
{
    case 1:
        executable group 1 ;
        break ;
    case 2:
        executable group 2 ;
        break ;
    ...
    default:
        executable group last ;
}
```

switch: key points

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if else

switch

- Controlling_variable: int, char
- char variable: 'c' ;
- break;
- Other cases -- default :

switch: example (int)

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if else

switch

```
int courseId ;
switch ( courseId )
{
    case 101:
        printf("Basics of Computing") ;
        break ;
    case 351:
        printf("Operating System") ;
        break ;
    case 230:
        printf("Computer Organizatoin") ;
        break ;
    default:
        printf("Not open in this semester") ;
}
```

switch: example (int)

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if else

switch

```
int courseId ;
switch ( courseId )
{
    case 101:
        printf("Basics of Computing") ;
    case 351:
        printf("Operating System") ;
        break ;
    case 230:
    case 231:
        printf("Computer Organizatoin") ;
        break ;
    default:
        printf("Not open in this semester") ;
}
```

switch: example (char)

```
char color ;
switch ( color )
{
    case 'r':
        printf("Tricolor:  Red") ;
        break ;
    case 'g':
        printf("Tricolor:  Green") ;
        break ;
    case 'b':
        printf("Tricolor:  Blue") ;
        break ;
    default:
        printf("Not belong to tricolor") ;
}
```

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if else

switch