

Ch.4 Making Decisions

Part 3

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Lecture 11

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The switch Statement

intro

- multi-way decision that tests an integer expression against multiple constant integer values

```
switch (expression) {  
    case const-expr: statements  
    ...  
    case const-expr: statements  
    default: statements  
}
```

The switch Statement

semantics

```
switch (expression) {  
    case const-expr: statements  
    ...  
    case const-expr: statements  
    default: statements  
}
```

- *expression* is evaluated to an int/char value
- execution starts at the case labeled with the int value
- execution starts at default if the int value matches none of the case labels

The switch Statement

syntax

```
switch (expression) {  
    case const-expr: statements  
    ...  
    case const-expr: statements  
    default: statements  
}
```

- *expression* must have int (or char) type
- *const-expr* must be a constant:
a literal or named constant
- *statements* is one or more statements
(no braces needed)
- default is optional

The switch Statement

- Example:

```
int quarter;  
...  
switch (quarter) {  
    case 1: cout << "First";  
            break;  
    case 2: cout << "Second";  
            break;  
    case 3: cout << "Third";  
            break;  
    case 4: cout << "Fourth";  
            break;  
    default: cout << "Invalid choice";  
}
```

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The break Statement

- The `break` statement causes an immediate exit from the `switch`.
- Without a `break` statement, execution continues on to the next set of statements.
- Sometimes this is useful: the textbook has some nice examples.

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The switch Statement

- Multiple labels for same set of statements
- if `ch` is 'a', it falls through to Option A

```
char ch;  
...  
switch (ch) {  
    case 'a':  
    case 'A': cout << "Option A";  
               break;  
    case 'b':  
    case 'B': cout << "Option B";  
               break;  
    case 'c':  
    case 'C': cout << "Option C";  
               break;  
    default: cout << "Invalid choice";  
}
```