Computer Science 227
Introduction to Programming

Iowa State University

September 16, 2011
Assignment 1 is posted.
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Midterm Exam 1 is on Sep 29
Recap

if (BooleanExpression) {
    //if block
    :
} else {
    // else block
    :
}

If the BooleanExpression is true, perform if block and skip else block.
If the BooleanExpression is false, skip if block and perform else block.
if (BooleanExpression) {
//if block
:
}

If the BooleanExpression is true, perform if block. If the BooleanExpression is false, skip if block.
Boolean Expressions

- $5 == 3; \text{false}$
- $3 == 3; \text{true}$
- $i == j$
- $i > j$
- $i >= j$
- $i != j$
Student Status

Write a program that asks the user to enter the number of credits completed and determine whether the student is a sophomore or not.

- Freshman: less than 30 credits
- Sophomore: at least 30, but less than 60
- Junior: at least 60, less than 90
- Senior: at least 90
(credits \geq 30) \text{ AND } (credits < 60)

Required boolean expression:

\(( (credits \geq 30) \&\& (credits < 60)) \)

Say \( p \) and \( q \) are two boolean expressions:

- \( p\&\&q \) is true if and only if both \( p \) and \( q \) are true
- \( p\mid\mid r \) is true if and only if at least one of \( p \) or \( q \) is true
- \( \neg p \) is true if and only if \( p \) is false.
Write a program that asks the user to enter whether a person is male or not, and whether the person is married or not. Generate a title (Mr., Mrs., Miss.) based on responses.

Write a program that asks the user to enter an email address and tells whether it is a valid email address. A valid address should have : @ and then at least one .
Boolean Expressions

```java
boolean divisibleBy3;
boolean divisibleBy2;
boolean divisibleBy6 = divisibleBy3 && divisibleBy2;

boolean isSenior;
boolean isGradStudent;
boolean canTakeAdvanceCourse = isSenior || isGradStudent;

int n;
boolean divisibleBy5 = (n % 5 == 0);
boolean isNegative = (n < 0);
boolean nonNegDivBy5 = !(isNegative) && divisibleBy5;
```
boolean divisibleBy3;
boolean divisibleBy2;
boolean divisibleby6 = divisibleBy3 && divisibleBy2;

boolean isSenior
boolean isGradStudent
boolean canTakeAdvanceCourse = isSenior || isGradStudent;

int n;
boolean divisibleBy5 = (n%5 ==0)
boolean isNegative = (n < 0)
boolean nonNegDivBy5 = !(isNegative) && divisibleby5
Boolean Expressions

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boolean divisibleBy3;
boolean divisibleBy2;
boolean divisibleBy6 = divisibleBy3 && divisibleBy2;
boolean isSenior
boolean isGradStudent
boolean canTakeAdvanceCourse =
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```
boolean divisibleBy3;
boolean divisibleBy2;
boolean divisibleby6 = divisibleBy3 && divisibleBy2;
boolean isSenior
boolean isGradStudent
boolean canTakeAdvanceCourse = isSenior || isGradStudent;
int n;
boolean divisibleBy5 = (n%5 ==0)
boolean isNegative =
boolean divisibleBy3;
boolean divisibleBy2;
boolean divisibleby6 = divisibleBy3 && divisibleBy2;
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Boolean Expressions

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boolean isSenior
boolean isGradStudent
boolean canTakeAdvanceCourse = isSenior || isGradStudent;
int n;
boolean divisibleBy5 = (n%5 ==0)
boolean isNegative = (n < 0)
boolean nonNegDivBy5 = !(isNegative) && divisibleby5
```
Practice Problems

- Write a program that asks the user to enter two numbers and outputs their sum. If the user does not enter a valid input, then the program must output an error message.

- Write a program that asks the user to enter the number of credits, and determines whether the student is freshman, sophomore, junior or senior.

- The program that we wrote for valid email addresses is somewhat buggy. It says @· is also a valid email address. Fix it.

- Write a program that asks the user to enter a numeric grade scored in 227 and converts into letter grade.