Preassignment 1 is posted. Due Sep 20.
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Assignment 1 will be posted within next two days
Conditionals

if-else Statement

```
if (TestExpression) Action1 else Action2
```

TestExpression: Logical/Boolean expression
Action1, Action2: Single statement or a block of statements.
If the TestExpression is true, then Action1 is performed and Action2 is not performed.
If the TestExpression is false, then Action2 is performed, and Action1 is not performed.

```
if (amount <= 0) {
    return false;
}
else {
    balance = balance - amount;
    return true;
}
```
Conditionals

if Statement

if (TestExpression) Action1

TestExpression: Logical/Boolean expression
Action1, Action2: Single statement or a block of statements.
If the TestExpression is true, then Action1 is performed.
If the TestExpression is false, then Action1 is not performed.

if (amount > 0) {
    balance = balance + amount;
}

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Boolean Expressions

Expressions whose value is either is true or false are Boolean expressions.

- 5 > 2 value is true
- i > j: Depends on the values of variables i and j.

```cpp
int i
int j
```

- equals i == j: true if i and j have same value. Otherwise false.
- Does not Equal i != j: True if i and j have different values.
- i > j, i < j, i >= j, i <= j.
- (i + j) == k: True if the sum of i and j equals k.

Arithmetic expressions can be part of boolean expressions.
Increasing order

Write a program that asks the user to enter two numbers and output the numbers in increasing order.
Can do with:

- A single if–else statement
- A single if statement
- Two if statements
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 >= 30) AND (credits < 60)

Required boolean expression:

((credits >= 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
- $p || r$ is true if and only if at least one of $p$ or $q$ is true
- $!p$ is true if and only if $p$ is false.