

Intro to Programming - Part 2

CS1A

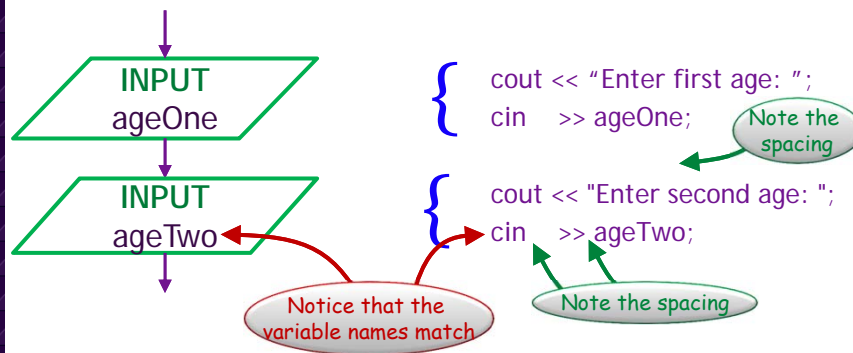
- Some review
- Declaration Sections
- Data Tables
- A little more review

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Coding INPUT from flowcharts



- Each input on a flow chart will have a corresponding cout/cin pair
 ➔ all other constructs are 1 - 1 (1 symbol per statement)

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endl vs. “\n”

Move the output to a new line

- They both accomplish essentially the same task
- endl → manipulator
- “\n” is an escape sequence

Program – Basic Structure

◦ *Directive(s)*

- information the program needs (a list of all necessary header files used in the program)

◦ *Heading - int main ()*

- *functions by definition return a value*
→ the above heading indicates that this function will return an int

◦ *Inside the int main function*

```
{  
    named constant declarations  
    variable declarations  
    executable statements  
    return 0;  
}
```

Identifiers → Review

- What are the two types of identifiers?
- Which can appear on the right side of a cout statement?
- Which can appear on the right side of a cin statements?

Declaring Identifiers → Review

- How do we declare variables?
- How do we declare constants?

Variables & Constants

- When is the amount of memory that will be allocated determined for a variable?
- When is the amount of memory that will be allocated determined for a constant?
- When is a value placed in a variable?
- When is a value place in a constant?
- Name two ways to assign values to a variable?

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Data Tables

- What is a Data Table?
- What 2 things should the data table contain?

Example

```

int  ageOne;           // IN & CALC  - first age from user
int  ageTwo;           // IN & CALC  - second age from user
float averageAge;      // CALC & OUT - average of two input ages
char  answer;          // IN & OUT   - holds 'Y' or 'N' response
                        //           from user
char  userName[20];    // IN & OUT   - name of program user
  
```

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Declaration Section Exercise

Write the necessary declaration section for a program requiring the following *variables and named constants*. Use the proper style and be sure to include the data table. Also, remember that identifiers must be descriptive.

- a location to hold the name of the programmer (an unchanging value)
- a location to hold the date the code was written(an unchanging value)
- locations to hold the names of two users of the program (input from the keyboard)
- locations to hold the ages of each of the two users (input from the keyboard)
- a location to hold the older of the two (calculated & output)
- a location to hold the average of the ages (calculated & output)

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- a location to hold the average of the ages (calculated & output)

Assignment Statements - Review

Syntax

variableName = *expression*;

Assigns the expression to the variable.

Example:

```
ageOne    = 15;
ageTwo    = 23;
averageAge = (ageOne + ageTwo) / 2.0;
answer    = 'y';
```

Note the spacing before and after
all operators

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Review

1. A compiler translates code written in a _____ language into _____ language.
2. T/F Syntax is the rules that dictate the meaning attached to instructions in a programming language.
3. A _____ is the name of a location in memory that has a data value that may be changed.
4. Values for these identifiers are obtained at _____ time and the amount of memory to be reserved is determined at _____.
5. A _____ is the name of a location in memory that has a data value that may not be changed.
6. Values for these identifiers are obtained at _____ time and the amount of memory to be reserved is determined at _____.

7. The documentation next to the declarations for variables and named constants is called the _____.
8. It tells the reader _____ and _____ their values are used/obtained.
9. Each input block shown on a flowchart requires a _____ statement to prompt the user and a _____ statement to place the input value into the specified memory location.
10. Explain the difference between the following declarations
`char charVal;`
`char strVal[10];`