

Philip Pesic

Week 4

February 12 2023

Week 4 Q20

1) What are import libraries ?

Import libraries are compilations of existing code that serve to aid the programmer by providing pre-built function, commands, or other

2) What commands are found in the library `java.util.Scanner` that we will use ?

`nextLine()`, `nextInt()`, `nextFloat()`, etc.

These commands dictate what datatype the user inputs and handles the input.

3) What is syntax ? Relate it to Grammar..

Syntax is the format of code, or the way it is written. The same way grammar dictates how a sentence is structured, syntax dictates how a program is written (Ex: semicolons)

4) What does the computer do when it encounters a statement that Declares a variable ?

It allocates a certain amount of ram, depending on the datatype, and stores a value in that address, as well as creates an alias for the address.

5) What are the byte sizes for int, double and char data types ?

Int: 4, double: 8, char: 2

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6) Why is an int variable only able to store a range of values from approx. -2.1 billion to +2.1 billion ?

Because +- 2.1b is the largest binary number that can be represented by 4 bytes, or the amount of ram allocated to ints

7) What is PEMDAS ? How is it also important when doing math in a computer program ?

PEMDAS is the order in which operations are computed, and they are important to maintain consistency in mathematical equations. Here is the order in which PEMDAS prioritizes operations:

Parentheses, Exponents, Multiplication, Division, Addition, Subtraction

8) Is the '=' sign the same for math and programming ? Explain your answer.

It is not. In programming, = is used to assign something a value, whereas == is used to determine equivalency like in math.

Ex: `int x = 4; //assigns x to value 4 | x == 4; //Determines whether x is equivalent to 4`

9) What happens when you Assign a value to a variable ? How does it work ?

The computer will store that value in the variable's ram address, and create an alias, the variable name, for the programmer to reference it by.

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10) What is variable Initialization, is it necessary in JAVA ?

Variable initialization means to assign a value to a variable. It is not necessary in java, and it will assign the value to NULL by default

11) Have you looked at the syntax of the declaration and assignment statements ?

a. Is the order of their syntax fixed.. ? Give examples.

Yes, you must declare a variable before you initialize it, otherwise you won't have anything to assign a value to.

Ex: `int x = 4; //Good` | `x = 4; int x; //Bad`

b. Would the statements still work if you switch of order of the parts in the statements ? (READ the lecture explanations very very carefully)

It will not. Although you can declare and initialize a variable on the same line, the declaration must come first

12) Code Reuse, Why reuse code ?

Code reuse allows programmers to save time and maintain legibility by reusing existing code through loops or functions instead of manually rewriting code

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13) Why use comments // ?

Comments allow programmers to leave notes or explanations to themselves or others. They are not read by the compiler and do not affect the program.

14) What is the hardware that is behind a variable ?

The OS memory manager assigns the variable a ram address, value, and alias (last 2 as dictated by the programmer), and the ram stores the variable.

15) Why use variable naming conventions ? .. what would happen if you did not use them ?

Naming conventions, such as camel or snake case make variables easier to read by separating the words in a variable name without creating spaces. If not used, programmers will easily become confused and often misread or confuse variables

16) How many 'key words' will you be learning in this class ?

50

17) When should you use the >> and << symbols ?

These are bitwise left/right shift operators, which shift the bits of a variable. They can be used to manipulate numbers.

Ex: `x = 101; x >> 1 == 010;`

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18) What part of the OS helps you declare variables ?

The OS memory manager.

19) What is Camel case and why use it ?

Camel case is a variable naming convention that capitalizes the first letter of each word after the first. It is used to visually separate words in a variable to make names easier to read.

20) List the statement types have you use so far ?

Declaration, assignment, expression.