

STUDENT ACTIVITY 1.1 KEY: WORKING WITH VARIABLES AND DATA TYPES

MTA Course: Software Development Fundamentals

Topic: Understand computer storage and data types

File name: SoftDevFund_SA_1.1_key

Lesson Objective:

1.1: Understand computer storage and data types

Resources, software, and additional files needed for this lesson:

- SoftDevFund_PPT_1.1
- SoftDevFund_RL_1.1

Directions to the student:

Identify the following declarations and initializations of variables as legal or not legal. If they are not legal, indicate how to correct them.

Content:

1. `double num = 2;`

Legal.

2. `String ohSnap = "%$^&$";`

Legal.

3. `int num2 = 10.9;`

Illegal—no decimals allowed with `int`.

4. `byte smallNum = -42;`

Illegal—no negatives allowed with `byte`.

5. `char word = 'word';`

Illegal—only one character allowed.

6. `long bigNum = 12345678.9;`

Illegal - no decimals allowed with `long`.

7. `float x = 3.5F;`

Legal—By default, a real numeric literal on the right-hand side of the assignment operator is treated as `double`. Therefore, to initialize a `float` variable, use the suffix `f` or `F`. If you do not use the suffix in the previous declaration, you will get a compilation error because you are attempting to store a `double` value into a `float` variable.

8. `decimal deciNum = 4.2m;`

Legal—There is no implicit conversion between floating-point types and the decimal type; therefore, a cast must be used to convert between these two types.