Answers for Assignment 02
Name: Kaveendra Randeera

Q01)
Elucidate the following concepts: 'Statically Typed Language', 'Dynamically Typed Language', 'Strongly Typed Language', and 'Loosely Typed Language'? Also, into which of these categories would Java fall?"

+ Statically Type Language means that data types are checked at the time of compiling.
+ Dynamically Type Language mans that data types are checked at the run time of the code.
+ Java is a language that follows both Statically type and Dynamically Type.
+ Strongly Type Language means that the language more considers about the data types.
+ Loosely Type Language means that the language does not more consider about the data types.
+ Java is a Strongly Type Programming Language.

Q02).
"Could you clarify the meanings of 'Case Sensitive', 'Case Insensitive', and 'Case Sensitive-Insensitive' as they relate to programming languages with some examples? Furthermore, how would you classify Java in relation to these terms?"

+ Case sensitive means that the programming language considers about the case of keywords, if case is wrong, compiler gives and error.
+ Case insensitive means that the programming does not consider about the case of key words. If case of keywords had incorrect, compiler run the program and gets the output without an error.
+ Java is a case sensitive programming language.
+ examples int x =5; Int x=5; when case is incorrect, compiler gives an error.

Q03).
Explain the concept of Identity Conversion in Java? Please provide two examples to substantiate your explanation.

+Identity conversion – Converting the type of the identity without changing its value or representation.
Ex: byte myByte = 12;
int myInt = var1;

Q04).
Primitive widening conversion - Converting a value from one primitive data type to another data type that has a larger size or a wider range to accommodate the original value
Ex: short myShort = 125;
int myInt = myShort;
byte myByte = 122;
short myShort = myByte;

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Q05).
Compile time constant – Constants whose values can be determined at the compiled level Ex final double PI = 3.1432 Runtime constants – Constants whose values are only be determined at the run time.
Ex: public static final int RANDOM_VALUE = getRandomValue();
public static int getRandomValue()
{ return (int) (Math.random() * 100); }

Q06).
Implicit narrowing conversion - Converting a value from one primitive data type to another data type that has a smaller size or a less range by the compiler without any external force
Ex int myInt = 120; byte myByte = myInt
Explicit narrowing conversion:
Converting a value from one primitive data type to another data type that has a smaller size or a less range by force
For implicit narrowing conversion, the value should be a complied time constant and the specific value should be within the range of the converting data type.

Q7).
Here we cannot compare long and float considering no of bites since their storing format is totally different. Float data type is designed to store large numbers. That range is more than integer value range.
long data type limits = 2^63 to 2^63 -1

Q08). Java is a C based language. In C, the default data types are int and double which has been inherited into the Java.
Int and double data types are well balanced data types considering the storage and the common practice. When assigning int and double as default most of the values in practice can be used without explicitly narrowing.

Q9). Because these byte, short, int and char are the mostly used values in common practice and data loss can be avoided in most of the numbers used in common practice.

Q10). Widening and Narrowing Primitive Conversion
Here the conversions are formed in two steps. In the first step a widening conversion is happening and in the second step, a narrowing primitive conversion is happening.

Size of the short and char data types are similar and it is 16 bits. So after the conversion no data range has been changed in the value. As per the standard in a narrowing or widening conversion, data range should be changed but here data range is not changed. So that it is not considered as a widening narrowing conversion.