CS620c Structured Programming Lesson 4

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Java – Important Points

- Java is case sensitive
- All statements in Java end with a semi-colon
- There are several types of comments in Java
  - single line comments - //

```
// This is a single line comment
```

  - multiline comments /* ……*/

```
/* This is a multi-line comments, use this type of
   comment when your comment is longer than one
   line */
```

- Indentation is very important. It makes your program easier to read

Dealing with errors

- Check your spelling
- Check case (Java is case sensitive)
- Check brackets (did you close all opened brackets)
- Check semi-colons

Lets write a program

- MyDetails.java
- Write a Java program called ShoppingList.java which prints the following to the screen:

```
**********
My Shopping List:
**********
1. my first item
2. my second item
3. my third item
4. my fourth item
5. my fifth item
```

Consider these questions.

1. What is an algorithm?
2. What does JVM stand for?
3. What does ‘platform independent’ mean?
4. How do I create a new java file or program?
5. How do I compile it?
6. How do I run it?
7. Are filenames case sensitive?
8. Can I have spaces in file names?
9. What line of code do I write to print the words ‘Java Programming’ to the screen?
10. Name three errors often made when writing programs.

Variables (1)

- Most programs are made up of one or more vairables. Variables are like materials in our algorithms.

Type	Contains (values in range)	Default+
byte	-128,-127…0,1,2..127	0
short	-32768,..0,1,2,..32767	0
int	-2147483648…0,1,2.. 2147483647	0
long	-9223372036854775808…0,1,2…9223372036854775807	0L
float	1.5×10^{-45} to 3.4×10^{38} (7 digit precision)	0.0f
double	5.0×10^{-324} to 1.7×10^{308} (15 digit precision)	0.0d
char	(\u0000 to \uffff) or (0 to 65535)	null
boolean	true or false	false

+ Never rely on default values (starting value), always set variables to a value

Variables (2)

Type	Description	Size (bits)
byte	8 bit signed integer (integer - counting number)	8
short	16 bit signed integer	16
int	32 bit signed integer	32
long	64 bit signed integer	64
float	floating point number	32
double	floating point number	64
char	a unicode character, e.g. ‘a’, ‘b’, ‘c’	16
boolean	Logical true or false	1

Variables (3)

- A variable is a means of storing a value in the computer
- It has the following three features
  - Type describes how the data in memory is to be interpreted (e.g. Integer, String, Floating point number).
  - Name this is used to refer to it in the program (e.g. x,y), sometimes we use the word “identifier” instead of name.
  - Value this is the contents of the memory interpreted in the context of the type (e.g. 1, Hello World, 5.63)

Variables (4)

- To declare a variable use the following syntax:

  <type> <identifier> = <value>;

- Examples:

```
int num1 =  156;
```

  – num1 is a variable of type int with a current value of 156

```
float num2 = 7.89f;
```

  – num2 is a variable of type float with a current value of 7.89

```
double num3 = 561511.5;
```

  – num3 is a variable of type double with a current value of 561511.5

Variables (5)

```
char c1 = 's';
```

- c1 is a variable of type char with a current value of 's'

```
boolean found = false;
```

- found is a variable of type boolean with a current value of false

- We can also declare and assign variables as follows:

```
int num4 =10, num5=9;
int num6;
num6=15;
```

Summary

- You should now know
  - How to use a simple editor and the JDK to create, compile and run java files
  - To create a simple Java program to print something to the screen
  - The main types of errors people make when learning to program