



IBM University and Vocational Education

Part III: Data Types

some questions, please answer

Data Types



- Which data type belong to the numeric integer types?

green	char, float and double
yellow	char, short and integer
red	char, short and int

Data Types

- What is the modifier?

green	a keyword to predetermined the range
yellow	the second editor of a program code
red	the compiler

Data Types



- Which value has the most significant bit in signed int?

green	-2^7
yellow	-2^{31}
red	-2^{15}

Data Types

- What does normalization mean?

green	act like you neighbor
yellow	change a number into a specific format
red	do everything in the same manner

Data Types



- What is the mantissa?

green

representation of exponent

yellow

rest of value that cannot be stored

red

a part of the float number

Data Types

- Take the float number 2.13 and normalize. What is the correct result?

green	$(-1)^0 * 1,065 * 2^1$
yellow	$(-1)^0 * 1,055 * 2^1$
red	$(-1)^1 * 1,065 * 2^2$

Data Types



- What is the bias?

green	adjustment of the float number
yellow	adjustment of the exponent
red	shift of mantissa

Data Types



- Which bias is right for long double?

green	1021
yellow	1022
red	1023

Data Types

- If the characteristic of double show the following bit model, what is the meaning of it?

1010 1010

green	297
yellow	43
red	64

You have to think about it a little bit more than before. It takes some minutes – I think!

Data Types



- What is a NaN?

green	Not a number, that mean 0 (zero)
yellow	Not a number, that means characteristic shows only 0-bits (all is zero)
red	Not a number, that means characteristic shows only 1-bits (all is one)

After you have answered this question try to convert $-\infty$ into a bit model of float.



Part IV: Operators and Operations

some questions, please answer

Operators and Operations



- Which priority order is correct?

green	+	*	/
yellow	()	*	+
red	&	*	+

Operators and Operations



- What is the meaning of the following operator?

||

green	this isn't an operator
yellow	bitwise OR
red	logical OR

Operators and Operations



- The return value of an operation is its result. What is the return value of this assign statement?

```
int x;  
x = 12;
```

green	return value is 12
yellow	return value is 1
red	return value is 0

Operators and Operations



- What is the difference between these two code statements?

```
a++;
```

```
++a;
```

green

There is no difference.

yellow

There is one but I don't know.

red

There is one and I want to explain.

Operators and Operations



- Which information is correct?

green	operators and operand are operations
yellow	operands need operations to become an operator
red	operators and operands form operations

Operators and Operations



- Spin-offs or side-effects are dangerous. Why?

green	If you have one, you can't get rid of it.
yellow	If you have one, it is a logical fault and not easy to detect within the program code.
red	If one operation does not show a spin-off this does not mean that there isn't any spin-off.

Operators and Operations



- Which characters are punctuation signs?

green	{ } braces
yellow	[] squared brackets
red	() parenthesis

If you can answer think of the names of these signs:

{ [(}])



Part V: Variables

some questions, please answer

Variables



- When does the runtime environment allocates memory for a variable?

green	in variable definitions
yellow	in variable declarations
red	in both

Variables



- When does the runtime environment allocates memory for a variable?

green	in variable definitions
yellow	in variable declarations
red	in both

Correct answer is green.

Variables



- What means visibility of a variable?

green	close your eyes and the variable isn't visible anymore
yellow	in every function every external variable is visible
red	a local variable is locally visible.

Variables



- What means visibility of a variable?

green	close your eyes and the variable isn't visible anymore
yellow	in every function every external variable is visible
red	a local variable is locally visible.

Correct answer is yellow and red.

Variables



- How long does a local variable exist?

green	one second
yellow	one day
red	one month

Variables



- How long does a local variable exist?

green	one second
yellow	one day
red	one month

*No answer is correct .
Please discuss but stop after some minutes if there are
questions left.*

Variables



- What is the difference between global variables and external variables?

green

I don't know.

yellow

there is no difference

red

external variables are not in the same file
they are place outside.

Variables



- What is the difference between global variables and external variables?

green

I don't know.

yellow

there is no difference

red

external variables are not in the same file
they are place outside.

Correct answer is yellow.



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Part VI: Functions

some questions, please answer

Functions



- Where is the data type of the return value placed?

green	never seen before, I don't know
yellow	placed in the parameter list
red	placed before the function name

Functions



- Where is the data type of the return value placed?

green	never seen before, I don't know
yellow	placed in the parameter list
red	placed before the function name

Correct answer is red.

Functions



- What does the data type `void` mean?

green	<code>void</code> is no data type
yellow	<code>void</code> means nothing
red	<code>void</code> means no data type

Functions



- What does the data type `void` mean?

green

`void` is no data type

yellow

`void` means nothing

red

`void` means no data type

Correct answer is red.

This was a tricky one, wasn't it?

Functions



- At the end of a function you often find the following statement.

```
return (0);
```

What's its meaning?

green	the return value is 0 (zero)
yellow	the return value is FALSE
red	there is no return value

Functions



- At the end of a function you often find the following statement.

```
return (0);
```

What's its meaning?

green	the return value is 0 (zero)
yellow	the return value is FALSE
red	there is no return value

*Correct answers are green and yellow.
Yellow because FALSE is 0 (zero).*

Functions



- How would you call the underlined part of the function written in red colour?

```
int my_function (int count, float result)  
{  
    return (result);  
}
```

green	function head
yellow	function body
red	function call

Functions



- How would you call the underlined part of the function written in red colour?

```
int my_function (int count, float result)  
{  
    return (result);  
}
```

green	function head
yellow	function body
red	function call

Correct answer is green.

Functions



- What is the name of the underlined characters of the function written in red?

```
int my_function (int count, float result)
{
    return (result);
}
```

green	these braces mark a block
yellow	these braces mark the function body
red	these braces mark the implementation of this function

Functions



- What is the name of the underlined characters of the function written in red?

```
int my_function (int count, float result)
{
    return (result);
}
```

green	these braces mark a block
yellow	these braces mark the function body
red	these braces mark the implementation of this function

Correct answers are green, yellow and red.