# Python Programming @ The department of Computer Science

Lower to Upper Case Character Conversion

Requirements

To produce a Python program that converts lower case alphabetic characters to upper case alphabetic characters (Figure 2). Note that lower case letters a..z have ASCII codes (Unicodes) 97..122, and upper case letters A..Z have ASCII codes (Unicodes) 65..90. Therefore to convert from lower case to upper case we must subtract -32 from the Unicode of the input character.
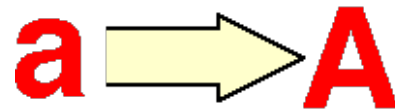
Testing

When using input variables that can only take a particular "range" of values it has been demonstrated that errors often occur at the boundaries of the input domain. It is for this reason that **Boundary Value Analysis** (BVA) has been developed as a testing technique. Boundary value analyses leads to a selection of test cases that exercise bounding values for data items. At its simplest this involves the derivation of test cases with values just above and just below the bounding values. Thus suitable boundary values for the above application will be '`', 'b', 'y' and '{' (the Unicode character code for the symbol '`' is 96, and that for the symbol '{' is 123).

Limit testing is related to BVA testing, and is concerned with the generation of test cases to exercise the program when maximum and minimum input values are supplied. In the some cases this may be the maxima/minima for the type, in others this may be the limits of a particular range that we are interested in ('a' to 'z' in the above case).

Test Case	Expected Result
Character (ASCII Code equivalent)	Output
' (96)	@
a (97)	A
b (98)	B
m (77)	M
y (121)	Y
z (122)	Z
{ (123)	[