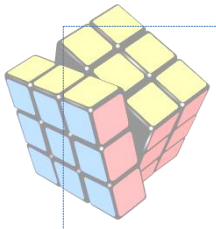

Problem Solving Process

Class 9

Lab 5

UNITED TRUST

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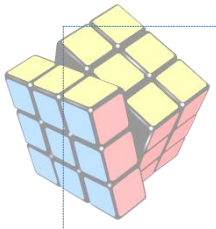
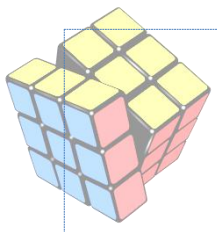


Lab Objectives:

- Solving some serious common problems

Mathematical, Relational and Logical Operator and their symbols

Operator	Computer Symbol	Example	
Mathematical		Operation	Resultant
Addition	+	3.0 + 5.2	8.2
Subtraction	–	7.5 – 4.0	3.5
Multiplication	*	8.0 * 5.0	40.0
Division	/	9.0/4.0	2.25
Integer division	\	9\4	2
Modulo division	MOD	9 MOD 4	1
Power	^	3 ^ 2	9
Relational			
Equal to	=	5 = 7	*False*
Less than	<	5 < 7	*True*
Greater than	>	5 > 7	*False*
Less than or equal to	<= (two key strokes)	5 <= 7	*True*
Greater than or equal to	>= (two key strokes)	5 >= 7	*False*
Not equal to	<> (two key strokes)	5 <> 7	*True*
Logical			
Not	NOT	NOT *True*	*False*
And	AND	*True* AND *True*	*True*
Or	OR	*True* OR *False*	*True*



Definitions of the Logical Operators

NOT

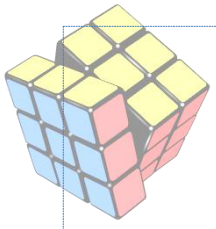
A	Not *A*	When *A* Is	The Resultant Is
True	*False*	NOT *True*	Is *False*
False	*True*	NOT *False*	Is *True*

AND

A	*B*	*A* AND *B*	When *A* Is		When *B* Is		The Resultant Is
True	*True*	*True*	*True*	AND	*True*	Is	*True*
True	*False*	*False*	*True*	AND	*False*	Is	*False*
False	*True*	*False*	*False*	AND	*True*	Is	*False*
False	*False*	*False*	*False*	AND	*False*	Is	*False*

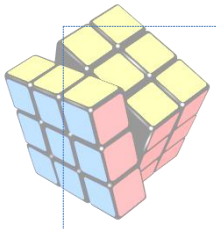
OR

A	*B*	*A* OR *B*	When *A* Is		When *B* Is		The Resultant Is
True	*True*	*True*	*True*	OR	*True*	Is	*True*
True	*False*	*True*	*True*	OR	*False*	Is	*True*
False	*True*	*True*	*False*	OR	*True*	Is	*True*
False	*False*	*False*	*False*	OR	*False*	Is	*False*



Hierarchy of Operations

Order of Operations	Operand Data Type	Resultant Data Type
( ) Reorders the hierarchy; all operations are completed within the parentheses using the same hierarchy.		
1. Functions		
Mathematical Operators		
2. Power	Numeric	Numeric
3. \, MOD	Numeric	Numeric
4. *, /	Numeric	Numeric
5. +, −	Numeric	Numeric
Relational Operators		
6. =, <, >, <=, >=, <>	Numeric or string or character	Logical
Logical Operators		
7. NOT	Logical	Logical
8. AND	Logical	Logical
9. OR	Logical	Logical



The following exercise illustrate how to use the concepts you've learned in class eight to write and evaluate expressions and equations. Try to answer all of this questions

Exercise 1: Name the data type for each of the following constants. Explain your answer.

a.5.38

b. "87654"

c.True

d. "A"

e. "707-434-5555"

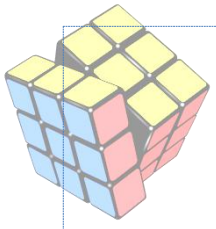
f. "New York"

g. -389

h. 2.45E6

i. 48976.0

j. False



Exercise 2: Find the result of the following operations:

a. 5 + 4

b. 10/2

c. True OR False

d. 20 MOD 3

e. 5 6 8

f. 25 MOD 70

g. “A” 7 “H”

h. NOT True

i. 25\70

j. False AND True

k. 20 * 0.5

l. 35 6= 35

m. 35/7

n. False OR False

o. True AND True

p. 50 MOD 5

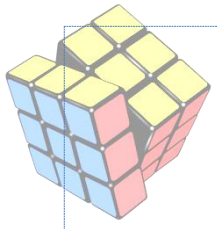
q. -35 6 67

r. 4.0 ^ 3

s. 60\9

t. 35 6 35

u. True AND False



Exercise 3: Evaluate the following equations, given the values A = 12, B = 3, C = 6, D = 2:

a. $F = A + B/C - D \wedge 2$

b. $F = (A + B)/C - D \wedge 2$

c. $F = A + B/(C - D \wedge 2)$

d. $F = (A + B)\ \mathrm{MOD}\ C$

e. $F = (A + B)\backslash D \wedge 2$