Discrete Structures

Assignment 01

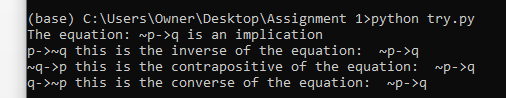
**From:**

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**Code:**

def print\_list(list):

ret = ""

for i in range(len(list)):

ret += list[i]

return (ret)

def inverse(equation):

list = []

stop = len(equation)

for i in range(len(equation)):

list.append(equation[i])

# print (list)

if '~' not in list:

list.insert(0,'~')

list.insert(4,'~')

print(print\_list(list), "this is the inverse of the equation: ", equation)

elif list[0] and list[4] =='~':

while '~' in list:

list.remove('~')

print(print\_list(list), "this is the inverse of the equation: ", equation)

elif list[0] == '~':

list.remove('~')

list.insert(3,'~')

print(print\_list(list), "this is the inverse of the equation: ", equation)

elif list[3] == '~':

list.remove('~')

list.insert(0,'~')

print(print\_list(list), "this is the inverse of the equation: ", equation)

# print (list)

def converse(equation):

list = []

stop = len(equation)

for i in range(len(equation)):

list.append(equation[i])

# print (list)

if '~' not in list:

var = list[0]

list[0] = list[3]

list[3] = var

print(print\_list(list), "this is the converse of the equation: ", equation)

elif list[0] and list[4] == '~':

var = list[1]

list[1] = list[5]

list[5] = var

print(print\_list(list), "this is the converse of the equation: ", equation)

elif list[3] == '~':

var = list[4]

var1 = list[0]

list[0] = var

list[4] = var1

list.remove('~')

list.insert(0, '~')

print(print\_list(list), "this is the converse of the equation: ", equation)

elif list[0] == '~':

list.remove('~')

var = list[0]

list[0] = list[3]

list[3] = var

list.insert(3, '~')

print(print\_list(list), "this is the converse of the equation: ", equation)

def contrapositive(equation):

list = []

stop = len(equation)

for i in range(len(equation)):

list.append(equation[i])

if '~' not in list:

list.insert(0,'~')

list.insert(4,'~')

var = list[1]

list[1] = list[5]

list[5] = var

print(print\_list(list), "this is the contrapositive of the equation: ", equation)

elif list[0] and list[4] == '~':

while '~' in list:

list.remove('~')

var = list[0]

list[0] = list[3]

list[3] = var

print(print\_list(list), "this is the contrapositive of the equation: ", equation)

elif list[3] =='~':

list.remove('~')

# list.insert(3,'~')

var = list[0]

list[0] = list[3]

list[3] = var

list.insert(3,'~')

print(print\_list(list), "this is the contrapositive of the equation: ", equation)

elif list[0] == '~':

list.remove('~')

var = list[0]

list[0] = list[3]

list[3] = var

list.insert(0,'~')

print(print\_list(list), "this is the contrapositive of the equation: ", equation)

def implication(equation):

list = []

stop = len(equation)

for i in range(len(equation)):

list.append(equation[i])

if "-" and ">" not in list:

raise Exception("This is not an Implication!")

else:

print("The equation: " + equation + " is an implication")

def propositional\_logic(equation, type):

implication(equation)

inverse(equation)

contrapositive(equation)

converse(equation)

if \_\_name\_\_ == ‘\_\_main\_\_’:

propositional\_logic("~p->q", "implication")