PROBLEM SOLVING AND PROGRAMMING I - 2020

Individual Assignment 2

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Question 1.

BEGIN

NUMBERFileSize, Time

OUTPUT

“Enter the number of characters in your file : “

INPUT

FileSize

Time = FileSize / 960

OUTPUT

Time “seconds taken to transmit your file.”

END

Question 2.

BEGIN

STORE UserPin in system

NUMBER PIN

CHARACTER Transaction, Initial\_Deposit, Balance, Deposit\_Amount, Withdraw\_Amount, Year, Interest as 3.3%, Counter

OUTPUT

“Enter your PIN : ”

INPUT

PIN

IF (UserPin != PIN) THEN

OUTPUT “Enter your PIN again (Attempt 2 Left) : “

IF (UserPin != PIN) THEN

OUTPUT “Enter your PIN again (Attempt 1 Left) : “

ELSE THEN EXIT the loop

IF (UserPin != PIN) THEN

OUTPUT HALT

ELSE THEN EXIT the loop

ELSE THEN

OUTPUT “Enter the transaction type – O, B, D, W, I, E only : ”

INPUT Transaction

IF (Transaction == O)

OUTPUT “Initial Deposit?”

INPUT Initial\_Deposit

OUTPUT “Account opened with your initial deposit of ” Initial\_Deposit

OUTPUT “Enter the transaction type – O, B, D, W, I, E only : ”

INPUT Transaction

IF(Transaction == B)

OUTPUT Balance

OUTPUT “Enter the transaction type – O, B, D, W, I, E only : ”

INPUT Transaction

IF (Transaction == D)

OUTPUT “Enter your deposit amount : ”

INPUT Deposit\_Amount

OUTPUT Balance “is your balance before the deposit.”

Balance = Balance + Deposit\_Amount

OUTPUT Balance “is your balance after the deposit.”

OUTPUT “Enter the transaction type – O, B, D, W, I, E only : ”

INPUT Transaction

IF(Transaction == W)

OUTPUT “Enter your withdrawal amount : ”

INPUT Withdraw\_Amount

IF (Withdraw\_Amount <= Balance)

OUTPUT “Your transaction is complete. Please take your cash and receipt.”

ELSE IF

OUTPUT “Your transaction is not complete. Please check your balance.”

Balance = Balance – Withdraw\_Amount

OUTPUT “Enter the transaction type – O, B, D, W, I, E only : ”

INPUT Transaction

IF(Transaction == I)

OUTPUT “The interest rate is 3.3%.”

OUTPUT “Enter the years of your planned saving : ”

INPUT Year

FOR counter=0 TO Years STEP 1 DO

Balance = Balance \* 1.033

OUTPUT “The new balance is ” Balance

OUTPUT “Enter the transaction type – O, B, D, W, I, E only : ”

INPUT Transaction

IF (Transaction == E)

Output “Thank you for using our service.”

END

ELSE IF

OUTPUT “You have attempted an illegal action.”

END

Question 3.

BEGIN

NUMBER Rows, i, j, k

CHARACTER Char

OUTPUT “Enter the number of rows you want to create : ”

INPUT Rows

OUTPUT “Enter the character you want to use : ”

INPUT Char

(First Shape)

FOR i = 0 TO Rows STEP 1 DO

FOR k = 0 TO Rows – i Do

OUTPUT “ “

FOR j = 0 TO i DO

OUTPUT Char

OUTPUT “/n”

END

(Second Shape)

FOR i = 0 TO Rows STEP 1 DO

FOR j = 0 TO Rows - i DO

OUTPUT Char

OUTPUT “/n”

END

(Third Shape)

FOR i = 0 TO Rows STEP 1 DO

FOR j = 0 TO i DO

OUTPUT Char

FOR k = i to Rows-1 STEP 1 DO

OUTPUT “ “

OUTPUT “/n”

END

Question 4.

-a)

BEGIN

NUMBER n, i, a, b = 1, j, p = 0

OUTPUT “Enter an integer value : ”

INPUT n

FOR i = 1 TO n STEP 1 DO

a = (-1) to the power of (i-1)

FOR j = 1 TO i STEP 1 DO

b = j \* b

p = p + a/b

OUTPUT “The value is ” p

-b)

BEGIN

NUMBER n, Input, x, sum

OUTPUT “Enter an integer to be checked : ”

INPUT n

Input = n

IF n == 0

OUTPUT “Not an Armstrong Number.”

ELSE

WHILE modulus[ n / 10 ] >= 0

x = n % 10

sum = x\*x\*x

n = n / 10

IF sum == Input

OUTPUT “The integer ” Input “is an Armstrong number.”

ELSE

OUTPUT “The integer ” Input “is NOT an Armstrong number.”

END

-c)

BEGIN

NUMBER a, b, i, j, n, Op\_Integer as 0

OUTPUT “Enter two binary numbers to be checked, separated in space : “

INPUT a, b

IF a > 0

IF b > 0

i = a % 10

j = b % 10

n = n+1

IF i == j

Op\_Integer = Op\_Integer + 2 ^ (n-1)

a = modulus [a / 10]

b = modulus [b / 10]

OUTPUT “The result is ” Op\_Integer

END

-d)

BEGIN

NUMBER n, x

STRING Inverse

OUTPUT “Enter a number you want to inverse : ”

INPUT n

IF n > 0

x = n % 10

Inverse = Inverse + “x”

n = n / 10

OUTPUT “The inversed outcome is ” Inverse

END