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ALGO EXERCISE # 5.3

LE 5.13 Problem Solver Menu. Create a program that lets the user choose an operation (power problem solver, factorial problem solver, or finding roots for quadratic equations using quadratic formula) from the menu. The program will always go back to the menu and lets the user choose again an operation until the user would like to quit using the app.

1. ASSIGN variable
   a. INT operation, i, f, base, power, num;
   b. FLOAT a, b, c;
2. DO
   a. INT answerPower = 1, factorial = 1;
   b. DISPLAY “(1) Power Problem Solver”
   c. DISPLAY “(2) Factorial Problem Solver”
   d. DISPLAY “(3) Quadratic Equation Root Problem Solver”
   e. DISPLAY “(4) Quit App”
   f. DISPLAY "Enter the number of your choice”
   g. GET int operation

   2.1 IF (operation == 1)
   a. DISPLAY “Enter your base number”
   b. GET int base
   c. DISPLAY “Enter the power”
   d. GET int power
   e. FOR (i = 1; i <= power; i++)
      e.1 CALCULATE answerPower= answerPower * base;
   f. DISPLAY the answerPower

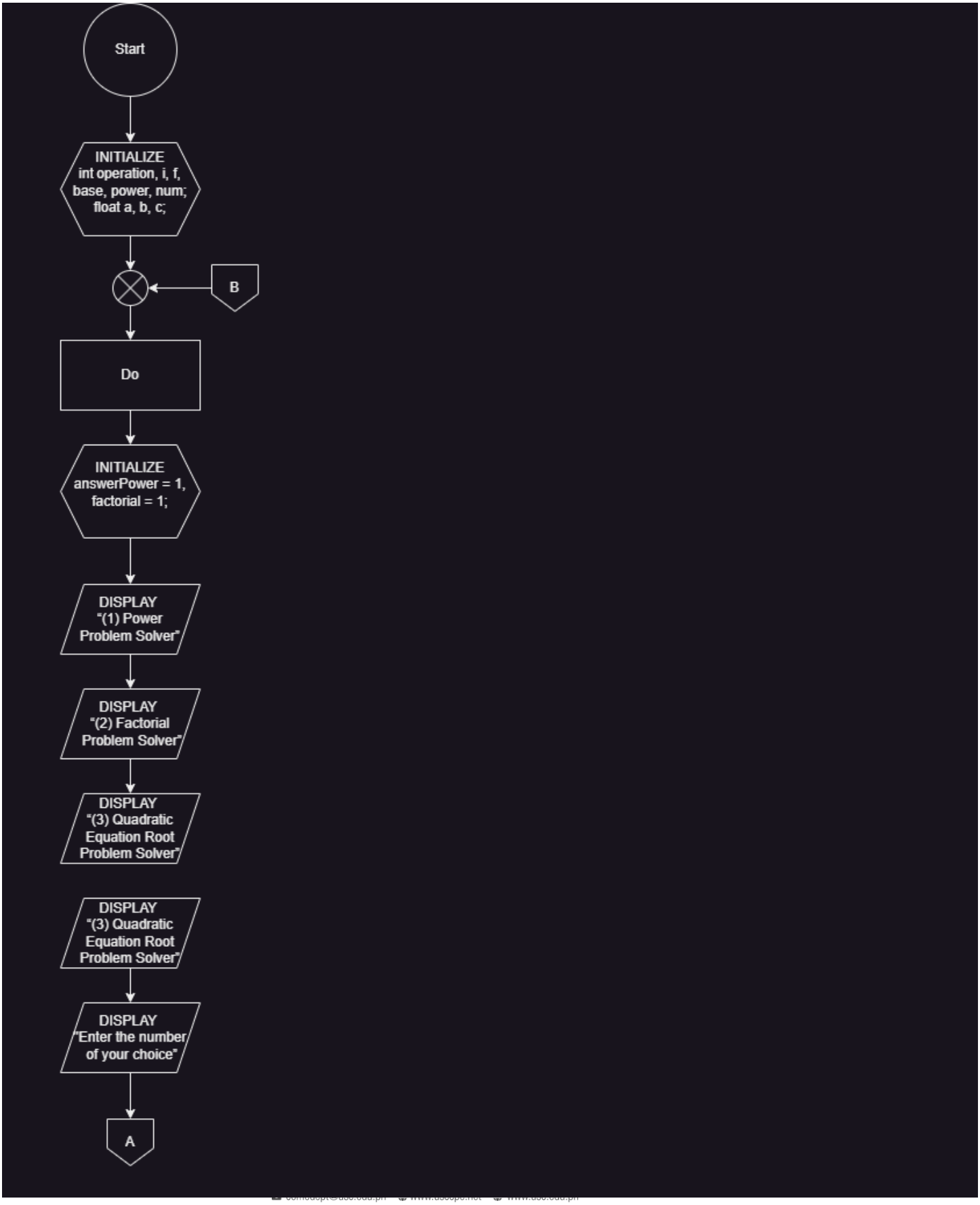
   2.2 IF (operation == 2)
   a. DISPLAY "Enter the number you want to factorialize”
   b. GET int num
   c. INT numBase = num
   d. FOR (f = 1; f <= numBase; f++)
      d.1 CALCULATE factorial = factorial * num;
      d.2 MINUS one to num, num—
   e. DISPLAY the factorial

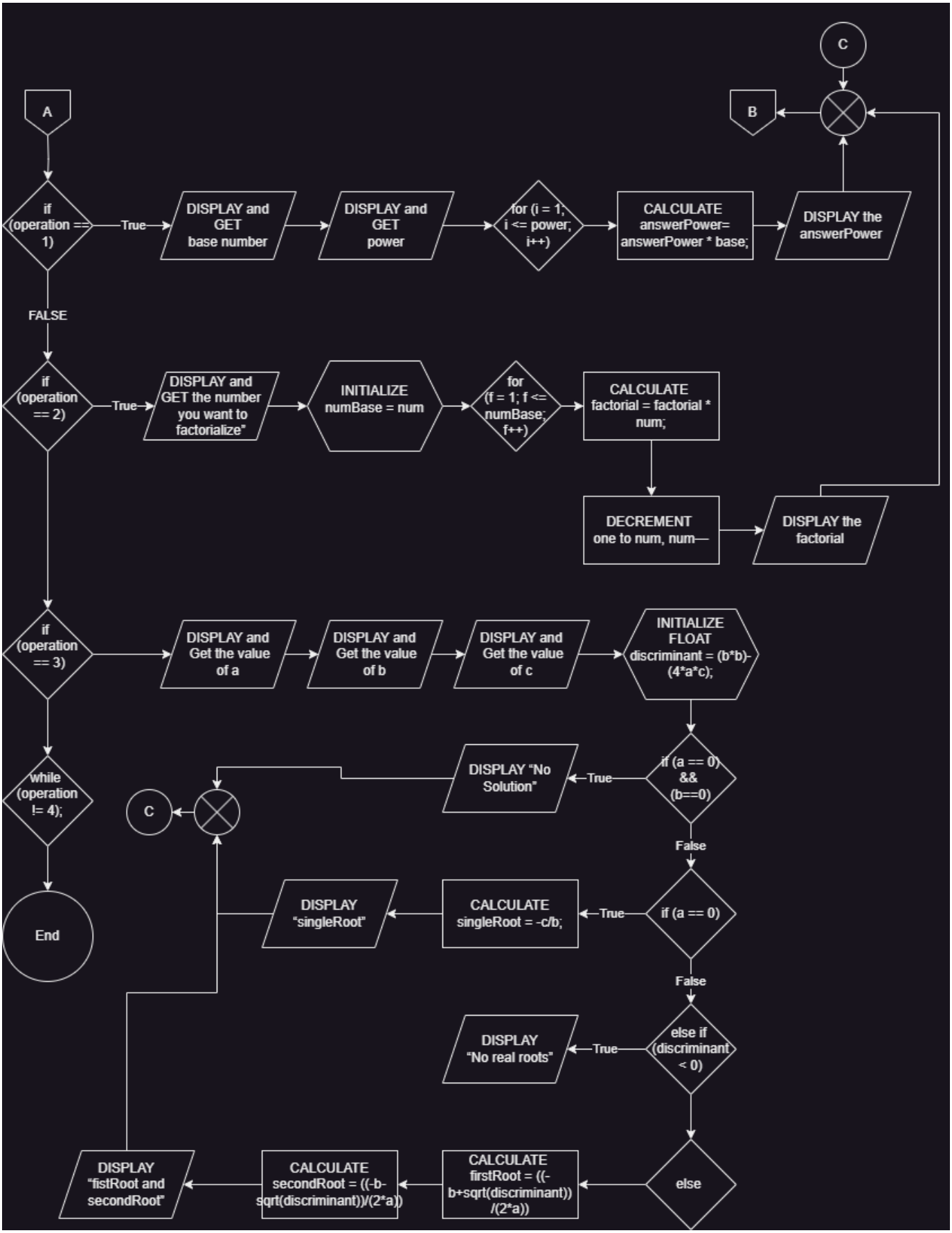
   2.3 IF (operation == 3)
   a. DISPLAY “Enter the value of a”
   b. GET float a
   c. DISPLAY “Enter the value of b”
   d. GET float b
   e. DISPLAY “Enter the value of c”

f. GET float c
g. FLOAT discriminant = (b*b)-(4*a*c);
h. IF (a == 0 && b == 0)
   h.1 DISPLAY “No Solution”
i. ELSE IF (a == 0)
   i.1 CALCULATE singleRoot = -c/b;
   i.2 DISPLAY “singleRoot”
j. ELSE IF (discriminant < 0)
   j.1 DISPLAY “No real roots”
k. ELSE
   k.1 CALCULATE firstRoot = ((-b+sqrt(discriminant))/(2*a))
   k.2 CALCULATE secondRoot = ((-b-sqrt(discriminant))/(2*a))
   k.2 DISPLAY “fistRoot and secondRoot”

3. WHILE (operation != 4);

STOP


Start
INITIALIZE int operation, i, f, base, power, num; float a, b, c;
B
Do
INITIALIZE answerPower = 1, factorial = 1;
DISPLAY "(1) Power Problem Solver"
DISPLAY "(2) Factorial Problem Solver"
DISPLAY "(3) Quadratic Equation Root Problem Solver"
DISPLAY "(3) Quadratic Equation Root Problem Solver"
DISPLAY "Enter the number of your choice"
A


A
if (operation == 1)
True
DISPLAY and GET base number
DISPLAY and GET power
for (i = 1; i <= power; i++)
CALCULATE answerPower= answerPower * base;
DISPLAY the answerPower
C
B
FALSE
if (operation == 2)
True
DISPLAY and GET the number you want to factorialize"
INITIALIZE numBase = num
for (f = 1; f <= numBase; f++)
CALCULATE factorial = factorial * num;
DECREMENT one to num, num—
DISPLAY the factorial
if (operation == 3)
DISPLAY and Get the value of a
DISPLAY and Get the value of b
DISPLAY and Get the value of c
INITIALIZE FLOAT discriminant = (b*b)-(4*a*c);
while (operation != 4);
C
DISPLAY "No Solution"
True
if (a == 0) && (b==0)
False
End
DISPLAY "singleRoot"
CALCULATE singleRoot = -c/b;
True
if (a == 0)
False
DISPLAY "No real roots"
True
else if (discriminant < 0)
DISPLAY "fistRoot and secondRoot"
CALCULATE secondRoot = ((-b-sqrt(discriminant))/(2*a))
CALCULATE firstRoot = ((-b+sqrt(discriminant))/(2*a))
else