

PF LAB NO#2

24K-0929 (YOGITA)

1. Write an algorithm to determine whether a number is a prime number. The algorithm should iterate through possible divisors and determine if the number has any divisors other than 1 and itself

START

STEP1: initialise a variable i to 2

STEP2: enter a number n>2

STEP3: $i < n$

STEP4: if $n \% i == 1$ then proceed further else printf "not a prime number" and end

STEP5: increment i by 1

STEP6: Display prime number

STEP6: End the loop

n=5

DRY RUN :	i	n	output
	2	$5 \% 2 == 1$	proceed further
	3	$5 \% 3 == 1$	proceed further
	4	$5 \% 4 == 1$	prime number

n=14

i	n	output
2	$14 \% 2 == 0$	not a prime number

2. Create an algorithm that asks the user for a day number (1-365) and outputs the corresponding day of the week, assuming that January 1st is a Monday.

START

STEP1: enter a day number (n)

STEP2: $n \% 7 == 1$ Monday

2 Tuesday

3 Wednesday

4 Thursday

5 Friday

6 Saturday

0 Sunday

STEP3: Display the day

END

1. Write pseudocode to find the smallest number among three given variables. Implement a decision-making structure to compare the variables.

START

\\INPUT\\OUTPUT

INPUT : a,b,c

\\PROCESS STEPS

If $a < b$ and $a < c$

Then print a is the smallest

Else If $b < a$ and $b < c$

Then print b is the smallest

Else

print c is the smallest

End

2. Develop pseudocode for a basic calculator that performs multiplication and division. The pseudocode should prompt the user for two numbers and an operator, then display the result of the operation.

START

Take user input

enter(operator,numbers)

Input operator

Input num1

Input num2

If operator == "+"

sum= num1+num2

printf("sum")

Elseif operator== "-"

diff=num1-num2

printf("diff")

Elseif operator == "*"

multiply=num1*num2

printf("multiply")

Elseif operator== "/"

div=num1/num2

printf("div")

Else

printf("Invalid operator")

END

2. Create pseudocode to subtract two numbers without using the - operator. (Hint: Use addition and complement techniques.)

START

Input a

Input b

\\process\\steps

Convert the numbers (a,b) in binary form

Invert the bits of one number suppose b

2's complement = 1+ inverted bit of b

A+2's complement of b

Output

The addition is the result of the subtracting of two numbers

END