1. You are working in a logistics company responsible for delivering packages. Design a flowchart

to manage the process of receiving, sorting, and delivering packages. Include decision

structures for handling fragile items and urgent deliveries.

start

sorting

Receiving package

Receiving package

Input size

Input address

Not clear

If address is clear

Input destination

Sorting

no

yes

If input address found

If Special handling needed

If national

no no

International service not available

yes

yes yes

sorted

received

delivered

exit

exit

exit

2. Imagine you are automating the process of a vending machine. Create a flowchart that

includes decision points for user input, selecting products, accepting payment, and dispensing

the correct item. Include error-handling for invalid inputs and insufficient funds

product

Read payment method

Read product

If method is cash

If product is valid

Payment method

no

no

Selecting product

Only cash is accaptable

yes yes

Product dispenced

select product

If product is selected

yes no

Selecting item

yes

PSEUDOCODE

Write pseudocode to find the smallest number among three given variables. Implement a

decision-making structure to compare the variables.

1.start

2.Declare num1, num2, num3: integer

3.Output “enter a number”

4.Input num1

5Output “enter a number”

6.Input num2

5.Output “enter a number”

6.Input num3

7.If num1<num2 and num1<num3

Then

Output “num1 is smallest”

Else if num2<num1 and num2<num3

Then

Output “num2 is smallest”

Else

Output “num3 is smallest”

8.End

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

1.Start

2.Declare num1, num2: integer.

3.Output “Enter num1”

Output “Enter num2”

4. Input “num1” and “num2”

5.Declare subtraction.

5.Set subtraction to num1 + complement (~) num2 +1;

6.Output “subtraction “

6.End

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.

1.Start

2.Declare num1, num2, multiplication, division, result.

3.Output “enter num1”

4. Input num1

5. Output “enter num2”

6. Input num2

7.output “enter an operation (\* or /)”

8.Input “operation”

8.if operation = \*

Then

Set result = num1\*num2

Output “result”

Else if operation = /

If num2 != 0

Set result division= num1\*num2

Output “result”

Else

Output “Error: Division is not allowed by zero”

9.End

ALGORITHM

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

Step 1: start.

Step 2: Enter a number.

Step 3: Enter a divisor from 2 to the one less than the entered number.

Step 4: Divide the number with the divisor from 2 if the entered number is completely divisible by the divisor then it is not a prime number.

Step 5: If the entered number is not completely divisible by the first divisor then enter a second one and the process continues on and on.

Step 6: If the entered number is not completely divisible by any of the divisor present in the limit then it is a prime number otherwise it is a not prime number.

Step 7: end.

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

Step 1: start

Step2: ask the user to enter a date

Step 2: Check the entered date is within the range 1 to 365.

Step 3: If invalid date Ask to enter the date again

Step 4: divide the entered number with 7 if the remainder is zero than it is a Sunday

Step5: if the remainder is 1 than Monday

Step6: if the remainder is 2 than Tuesday

Step7: if the remainder is 3 than Wednesday

Step8: if the remainder is 4 than Thursday

Step9: if the remainder is 5 than Friday

Step10: if the remainder is 6 than Saturday

Step11: End

3. Develop an algorithm for a program that takes two numbers as input and finds the Greatest

Common Divisor (GCD) of the two numbers using the Euclidean algorithm.

Step1: start

Step2: declare num1 and num2 and GCD

Step3: enter num1 and num2

Step4: while b! =0

Step5: store value of b in a variable

Step6: set b = a % b

Step7: update a to that variable

Step8: print “GCD = a”

Step9: end