PROGRAMMING FUNDAMENTALS LAB ASSIGNEMENT 2

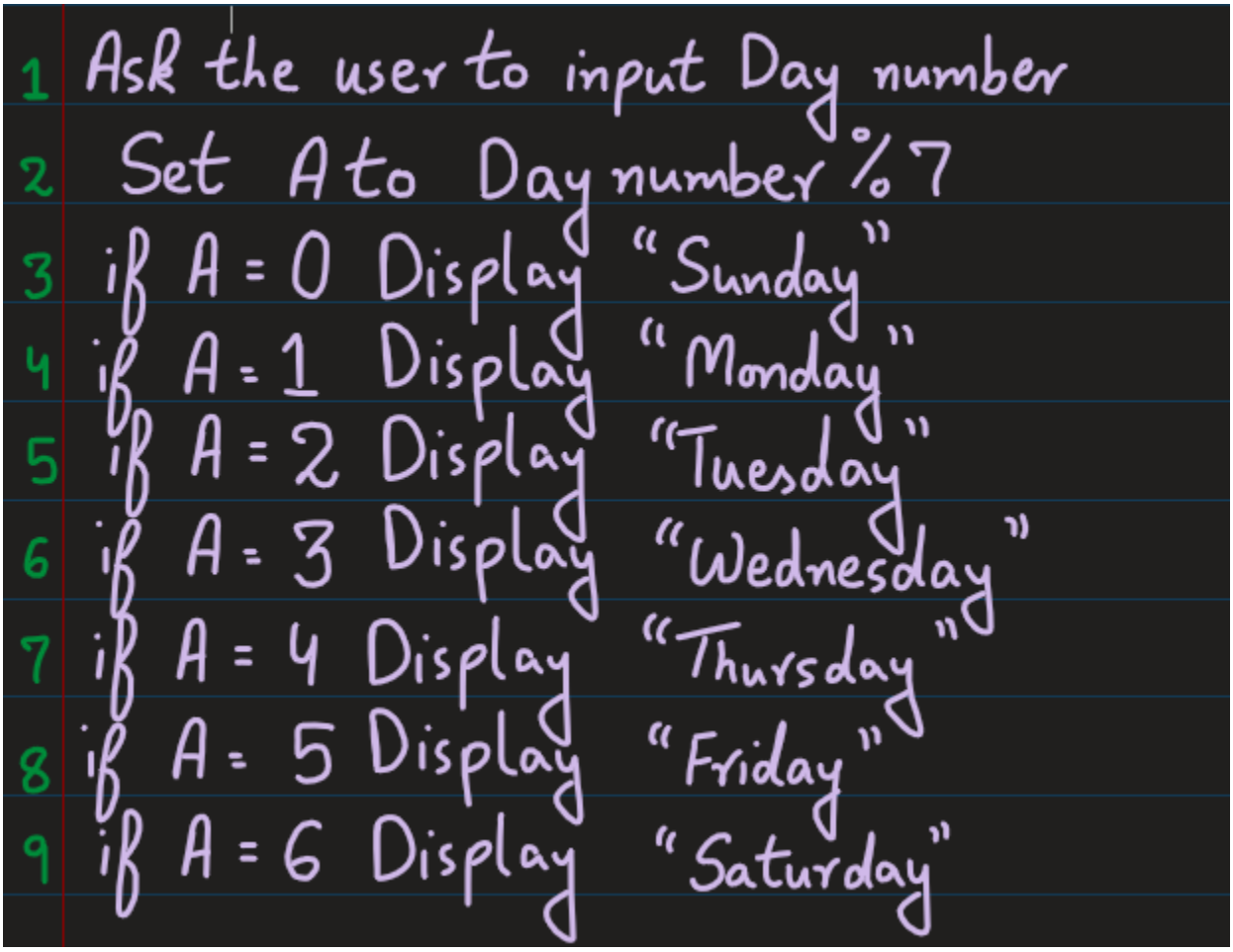
QUESTION 1

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

```
1  START
2  Print "Kindly Input three numbers"
3  INPUT a,b,c
4  IF  a<b  AND  a<c
5        THEN Print "The smallest number is:",a
6  ELSEIF b< a AND b <c
7        THEN Print "The smallest number is:", b
8  ELSE  Print "The smallest number:", c
9
10 END
```

QUESTION 2

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.**



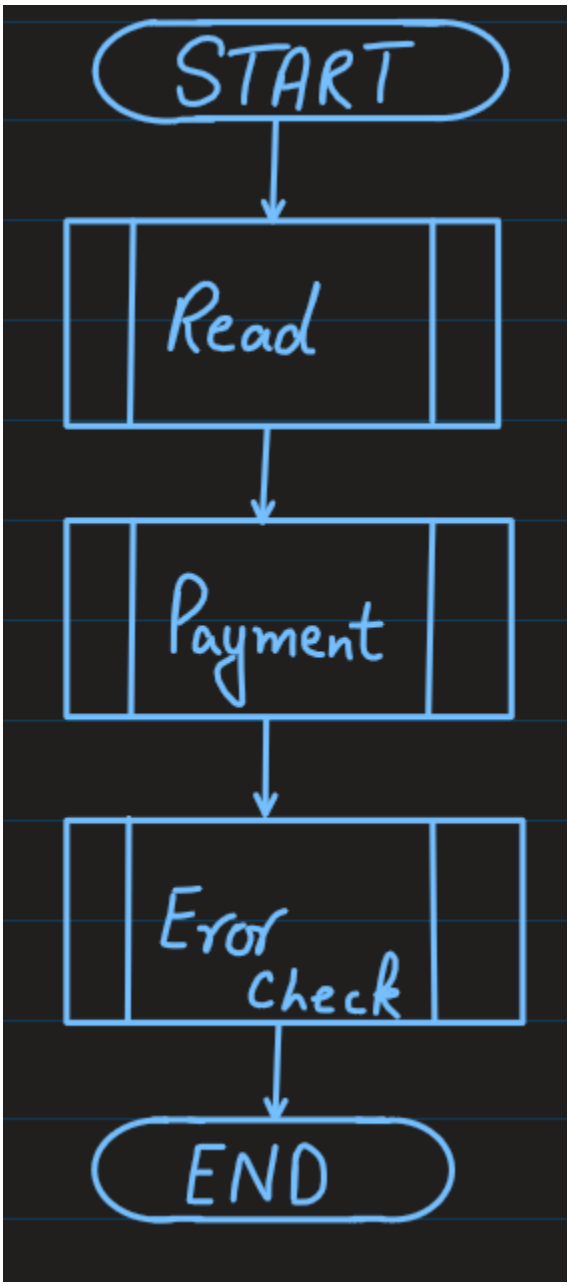
QUESTION 3

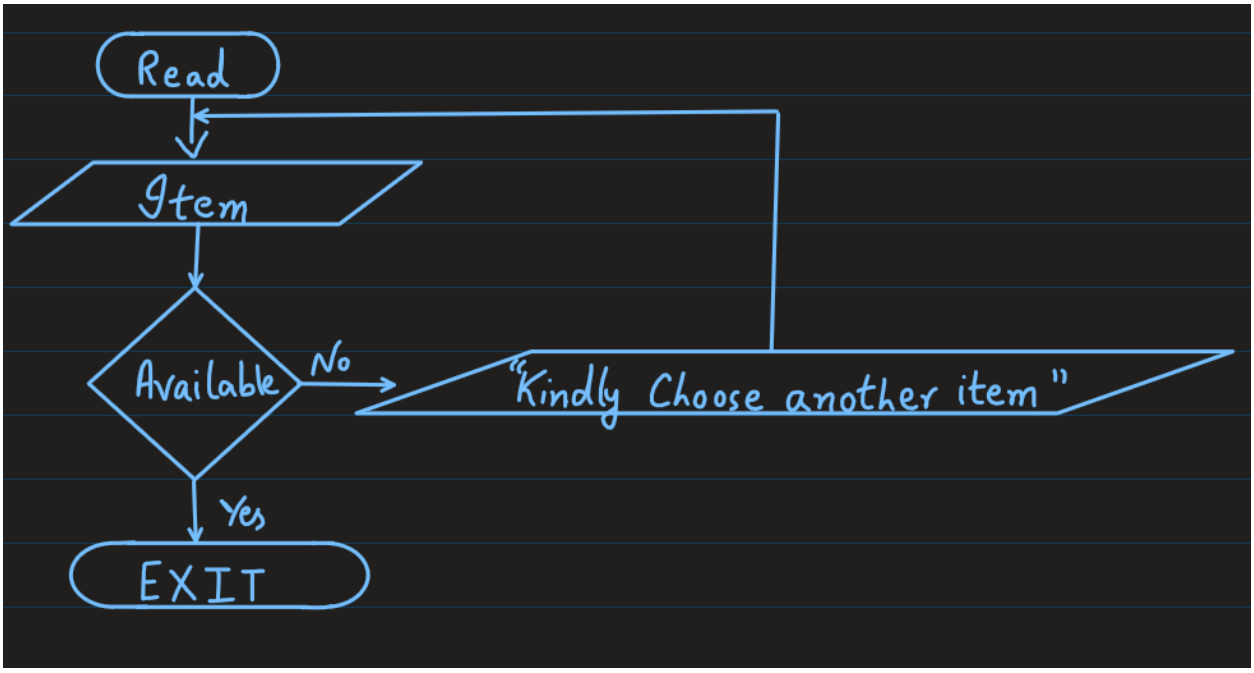
3. **Develop pseudocode for a basic calculator that performs multiplication and division. The pseudocode should prompt the user for two numbers and an operator, then display the result of the operation.**

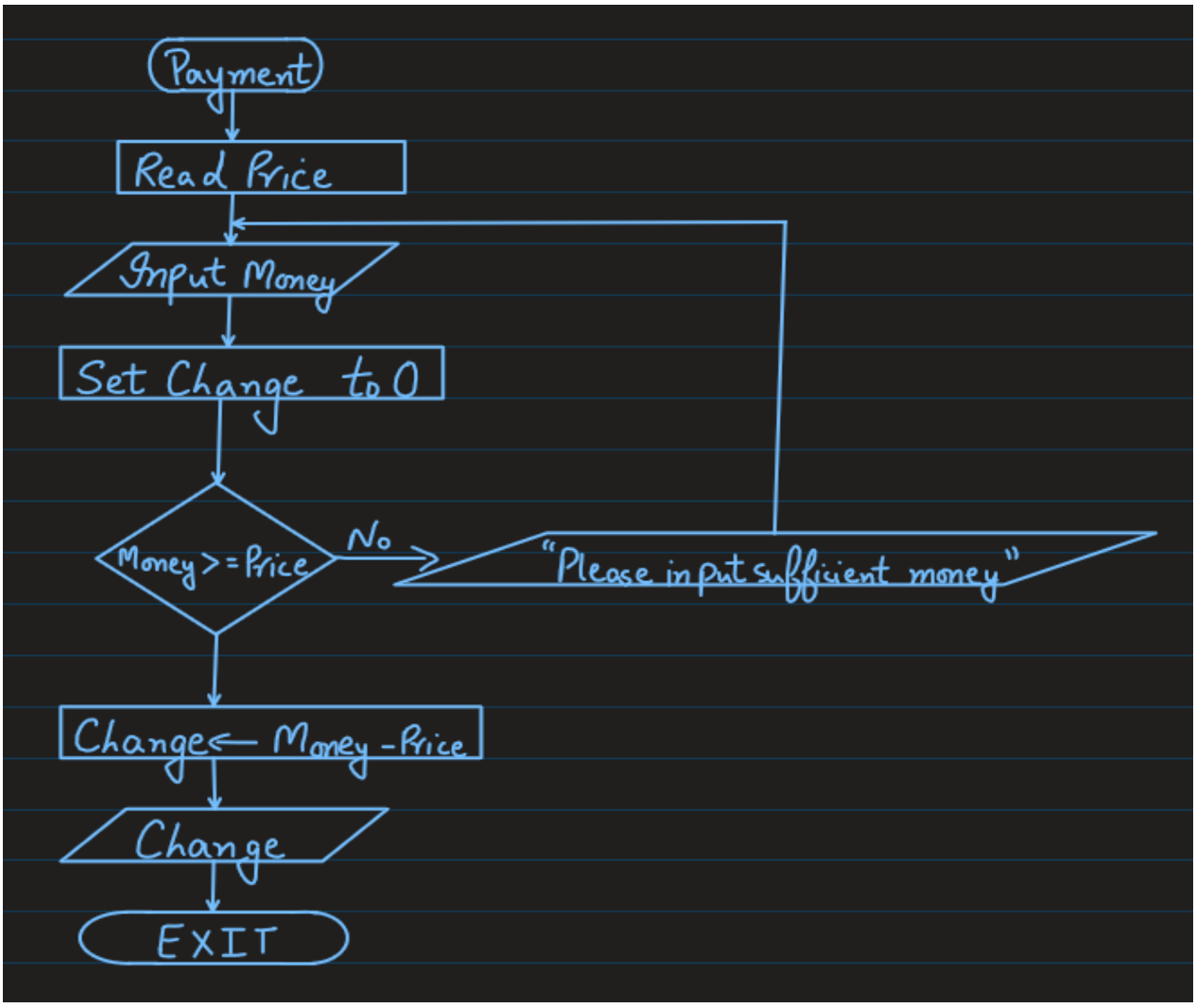
```
START
Print "Please input the operator / or *"
INPUT Operator
SET A←0
 IF Operator=/ THEN
    Print "Please input numerator first"
    INPUT Num
    INPUT Den
    SET A= Num/Den
    Print "Answer of the division is", A
ELSEIF  Operator=* THEN
    Print "Please input two numbers"
    INPUT b, c
    SET A = b * c
    Print "Answer of this multiplication is", A
 ENDIF
END
```

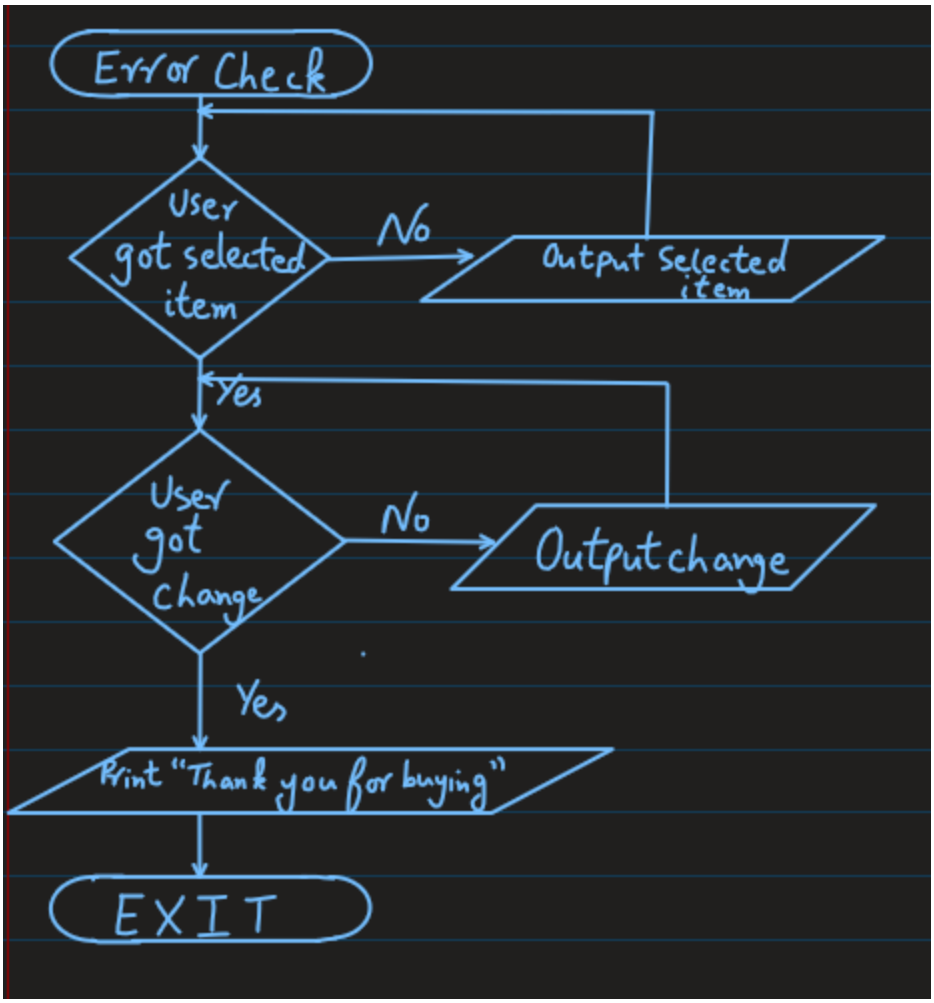
QUESTION 4

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.**




Read
Item
Available
No
"Kindly Choose another item"
Yes
EXIT


Payment
Read Price
Input Money
Set Change to 0
Money >= Price
No
"Please input sufficient money"
Change ← Money - Price
Change
EXIT


Error Check
User got selected item
No
Output Selected item
Yes
User got Change
No
Output change
Yes
Print "Thank you for buying"
EXIT

QUESTION 5

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.**

```
1 Ask user to enter a number n
2 IF n is 0 OR n is 1 Display n "not a prime number"
3 IF n is 2 Display n, "is a prime number"
4 ELSE Loop 2 To n-1
5  Set i to loop number
6  Set a to n%i
7  IF a is 0 Display n, "is not a prime number"
8  ELSEIF a is not equal to 0 repeat loop until i is equal to n-1
9  Display n "is a prime number"
```