25/10/23

1 Assignment: Addition of three Numbers:

take three numbers as input and compute their sum. Output the result.

Input: Three numbers num1, num2 and num3

Step 1: Start

Step 2: Declare sum to 0.

Step 3: Read number num1.

Step 4: Read number num2.

Step 5: Read number num3.

Step 5: Add num1, num2 and num3 and assign result to variable sum

Step 6: Print sum.

Step 7: Stop

Output: Sum of num1, num2 and num3

2.Assignment: Average and Percentage:

take the marks of a student in five subjects as input and compute the average and percentage. Output both the average and percentage.

Step 1: Start

Step 2: Initialize variables:

* + totalMarks to 0
  + averageMarks to 0
  + percentage to 0

Step 3: For i from 1 to 5 (for each subject): a. Input marks for the subject b. Add the marks to the total Marks.

Calculate average Marks: a. average Marks = totalMarks / 5

Step 4: Calculate percentage: a. percentage = (totalMarks / (5 \* maxMarks)) \* 100

* + maxMarks is the maximum possible marks in each subject (e.g., 100)

Step 5: Display average Marks and percentage

Step 6: Stop

3. Find the area and perimeter of circle, rectangle and square.

**Circle:**

1. Start
2. Input the radius of the circle (r).
3. Calculate the area of the circle:
   * area = π \* r \* r
   * Here, π (pi) is approximately 3.14159.
4. Calculate the perimeter (circumference) of the circle:
   * perimeter = 2 \* π \* r
5. Display the area and perimeter of the circle.
6. Stop

**Rectangle:**

1. Start
2. Input the length (L) and width (W) of the rectangle.
3. Calculate the area of the rectangle:
   * area = L \* W
4. Calculate the perimeter of the rectangle:
   * perimeter = 2 \* (L + W)
5. Display the area and perimeter of the rectangle.
6. Stop

**Square:**

1. Start
2. Input the side length (S) of the square.
3. Calculate the area of the square:
   * area = S \* S
4. Calculate the perimeter of the square:
   * perimeter = 4 \* S
5. Display the area and perimeter of the square.
6. Stop

4.Assignment: Simple Interest:

take the principal amount, rate of interest, and time in years as input and compute the simple interest. Output the result.

1. Start
2. Input the principal amount (P), rate of interest (R), and time in years (T).
3. Calculate simple interest (SI) using the formula:
   * SI = (P \* R \* T) / 100
4. Display the simple interest (SI) as the result.
5. Stop.

5. Assignment: Maximum and Minimum

take three numbers as input and find the maximum and minimum of the three. Output both the maximum and minimum.

1. Start
2. Input the first number (num1).
3. Input the second number (num2).
4. Input the third number (num3).
5. Initialize variables maxNum and minNum with the value of num1.
6. If num2 is greater than maxNum, set maxNum to num2.
7. If num3 is greater than maxNum, set maxNum to num3.
8. If num2 is less than minNum, set minNum to num2.
9. If num3 is less than minNum, set minNum to num3.
10. Display the maximum (maxNum) and minimum (minNum) values.
11. Stop.

6.Assignment:  Even or Odd

to take a number as input and determine if it is even or odd. Output "Even" or "Odd" accordingly.

1. Start
2. Input a number (num).
3. If num is divisible by 2 with no remainder (num % 2 == 0), then: a. Display "Even".
4. Otherwise, if num is not divisible by 2 with no remainder, then: a. Display "Odd".
5. Stop.

7. Assignment: Celsius to Fahrenheit Conversion

take a temperature in Celsius as input and convert it to Fahrenheit. Output the result.

1. Start
2. Input the temperature in Celsius (C).
3. Calculate the temperature in Fahrenheit (F) using the formula:
   * F = (C \* 9/5) + 32
4. Display the temperature in Fahrenheit (F).
5. Stop

8.Assignment: Leap Year

take a year as input and determine if it is a leap year or not. Output "Leap Year" or "Not a Leap Year" accordingly.

1. Start
2. Input a year (year).
3. If (year is divisible by 4) and ((year is not divisible by 100) or (year is divisible by 400)), then: a. Display "Leap Year".
4. Otherwise, if the conditions in step 3 are not met, then: a. Display "Not a Leap Year".
5. End

10. Assignment: Prime Number

take a number as input and determine if it is a prime number or not. Output "Prime" or "Not Prime" accordingly.

1. Start
2. Input a number (num).
3. If num is less than 2, then: a. Display "Not Prime" (numbers less than 2 are not prime).
4. Otherwise, if num is equal to 2, then: a. Display "Prime" (2 is a prime number).
5. Otherwise, set a variable isPrime to true.
6. For i from 2 to the square root of num: a. If num is divisible by i with no remainder, then:
   * Set isPrime to false.
   * Break the loop.
7. If isPrime is true, then: a. Display "Prime."
8. Otherwise, if isPrime is false, then: a. Display "Not Prime."
9. Stop.

11.Assignment: Print Numbers 1 to 10 to print numbers from 1 to 10 using a loop.

1. Start
2. Initialize a variable nun to 1.
3. Start a loop that continues while nun is less than or equal to 10.
4. Within the loop: a. Display the value of num. b. Increment num by 1.
5. End the loop.
6. Stop.

12. Assignment: 12. Assignment: Sum of N Natural Numbers

take a positive integer N as input and calculate the sum of the first N natural numbers using a loop. Output the result.

1. Start
2. Input a positive integer N.
3. Initialize a variable sum to 0.
4. Initialize a variable current to 1.
5. Start a loop that continues while current is less than or equal to N.
6. Within the loop: a. Add the value of current to the sum. b. Increment current by 1.
7. End the loop.
8. Display the value of sum as the result.
9. Stop.

2. Algorithms on ATM transactions

**1. Withdraw Cash:**

* Start
* Insert ATM card and enter PIN.
* Select "Withdraw Cash" on the screen.
* Input the amount to withdraw.
* Verify the transaction details.
* If the balance is sufficient, dispense cash.
* Update the account balance.
* Print a receipt.
* Stop

**2. Deposit Cash:**

* Start
* Insert ATM card and enter PIN.
* Select "Deposit Cash" on the screen.
* Input the amount of cash to deposit.
* Insert the cash into the ATM.
* Verify the deposited amount.
* Update the account balance.
* Print a receipt.
* Stop

**3. Check Balance:**

* Start
* Insert ATM card and enter PIN.
* Select "Check Balance" on the screen.
* Display the account balance.
* Stop

**4. Change PIN:**

* Start
* Insert ATM card and enter the current PIN.
* Select "Change PIN" on the screen.
* Enter a new PIN.
* Confirm the new PIN.
* Update the PIN in the system.
* Stop

**5. Transfer Funds:**

* Start
* Insert ATM card and enter PIN.
* Select "Transfer Funds" on the screen.
* Choose the destination account.
* Input the amount to transfer.
* Verify the transaction details.
* Transfer the funds.
* Update both account balances.
* Print a receipt.
* Stop

**6. Print Mini Statement:**

* Start
* Insert ATM card and enter PIN.
* Select "Mini Statement" on the screen.
* Print a mini statement with recent transactions.
* Stop

**7. Exit:**

* Start
* Select "Exit" or remove the card to end the session.
* End the transaction.
* Stop.

1. Algorithms on Library Management System:

**1. Add a Book:**

* Start
* Input book details (title, author, ISBN, etc.).
* Assign a unique identifier to the book.
* Add the book to the library catalog.
* Stop

**2. Remove a Book:**

* Start
* Input book's unique identifier or title.
* Search for the book in the catalog.
* If found, remove the book.
* Stop

**3. Borrow a Book:**

* Start
* Input user's library card number.
* Input the book's unique identifier or title.
* Check if the book is available for borrowing.
* If available, mark it as borrowed by the user.
* Update the book's status and due date.
* Stop

**4. Return a Book:**

* Start
* Input user's library card number.
* Input the book's unique identifier.
* Check if the book is associated with the user.
* If yes, mark the book as returned.
* Update the book's status.
* Calculate late fees, if applicable.
* Stop

**5. Search for Books:**

* Start
* Input search criteria (title, author, keywords, etc.).
* Search the library catalog for matching books.
* Display the list of matching books.
* Stop

**6. Generate Reports:**

* Start
* Select the type of report to generate (e.g., overdue books, popular titles).
* Collect data and perform calculations based on the report type.
* Display or export the report.
* Stop

**7. Manage User Accounts:**

* Start
* Choose the user account action (add, update, delete).
* Input user details for adding or updating.
* Remove user account, if needed.
* Stop

**8. Calculate Fine for Overdue Books:**

* Start
* Input the due date of the book return.
* Calculate the number of days late.
* Calculate the fine based on the late fee policy.
* Stop