



COMSATS University Islamabad

ASSIGNMENT # 03

Submitted To:

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Registration No:

FA25-BDS-023 & FA25-BDS-039

Program:

BDS-1A

Subject:

AICT

Date:

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Question 1: Calculate the age by taking date of birth from the user as input and display age as follows:

Your age is XX years, XX months, and XX days

Solution:

Problem Definition

We need to calculate a person's exact age in **years, months, and days** after taking their Date of Birth (DOB) as input.

Algorithm (Step-by-Step)

1. Start
2. Input DOB_day, DOB_month, DOB_year
3. Input Current_day, Current_month, Current_year
4. $\text{years} = \text{Current_year} - \text{DOB_year}$
5. If $\text{Current_month} < \text{DOB_month}$
 $\text{years} = \text{years} - 1$
 $\text{months} = 12 + \text{Current_month} - \text{DOB_month}$
Else
 $\text{months} = \text{Current_month} - \text{DOB_month}$
6. If $\text{Current_day} < \text{DOB_day}$
 $\text{months} = \text{months} - 1$
 $\text{days} = (\text{Current_day} + 30) - \text{DOB_day}$
Else
 $\text{days} = \text{Current_day} - \text{DOB_day}$
7. Display "Your age is years, months, days"
8. Stop

Example

- **DOB:** March 2005
- **Current Date:** 3 December 2025

Calculation:

- Years: $2025 - 2005 = 20$
- Months: $12 - 3 = 9$
- Days: Current Day (3) < Birth Day (15)
So we borrow 30 days from previous month.

Days = $(3 + 30) - 15$
Days = $33 - 15 = 18$ days

And because we borrowed days, we subtract 1 month:

Months = $9 - 1 = 8$ months

- **Output:**
Your age is 20 years, 8 months, and 18 days.

Question 2: For any integer received from the user between 0 and 1000, adds all the digits in the integer.

For example, if an integer is 932, the sum of all its digits is 14.

Here is a sample run: Enter a number: 999 sum of digits is 27

Solution:

Problem Definition

Given an integer between **0 and 1000**, add all its digits and display the sum.

Algorithm

1. Start
2. Input number n
3. sum = 0
4. Repeat while $n > 0$
 - digit = $n \% 10$
 - sum = sum + digit
 - $n = n / 10$ (integer division)
5. Display sum
6. Stop

Given Example:

Number = **932**

Step-by-Step Calculation

Extract digits one by one:

Step 1

$\text{digit} = 932 \% 10 = 2$

$\text{sum} = 0 + 2 = \mathbf{2}$

$n = 932 / 10 = \mathbf{93}$

Step 2

$\text{digit} = 93 \% 10 = 3$

$\text{sum} = 2 + 3 = \mathbf{5}$

$n = 93 / 10 = \mathbf{9}$

Step 3

$\text{digit} = 9 \% 10 = 9$

$\text{sum} = 5 + 9 = \mathbf{14}$

$n = 9 / 10 = \mathbf{0}$

Final Output:

Sum of digits = 14

Question 3: How to determine any number to be even or Odd ?

Problem Definition

We must check if a given integer is **even** or **odd**.

Algorithm

1. Start
2. Input number n
3. If $n \% 2 == 0$
 Display "Even number"
 Else
 Display "Odd number"
4. Stop

Example 1:

Input: 46

Step:

$46 \% 2 = 0 \rightarrow$ remainder is zero

46 is an Even Number

Example 2:

Input: 57

Step:

$57 \% 2 = 1 \rightarrow$ remainder is not zero

57 is an Odd Number
