



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. years = Current_year – DOB_year
5. If Current_month < DOB_month
 years = years – 1
 months = 12 + Current_month – DOB_month
Else
 months = Current_month – DOB_month
6. If Current_day < DOB_day
 months = months – 1
 days = (Current_day + 30) – DOB_day
Else
 days = Current_day – 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.

$$\begin{aligned}\text{Days} &= (3 + 30) - 15 \\ \text{Days} &= 33 - 15 = \mathbf{18 \text{ days}}\end{aligned}$$

And because we borrowed days, we subtract 1 month:

$$\text{Months} = 9 - 1 = \mathbf{8 \text{ months}}$$

- **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

digit = $932 \% 10 = 2$

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

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

Step 2

digit = $93 \% 10 = 3$

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

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

Step 3

digit = $9 \% 10 = 9$

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