12)

Reverse Numbers.

Problem Definition:

Reverse the digits of a given number n.

Example: For n = 1234, the reversed number should be 4321.

Steps to Solve:

Step 1: Initialize the number n

Step 2: Initialize ans = 0

Step 3: Loop while n > 0:

Calculate the remainder rem = n % 10

Update n = n / 10.

Update ans = ans * 10 + rem

Step 4: Print the value of ans.

Explanation:

This algorithm processes each digit of the number from right to left.

It constructs the reversed number by shifting the current digits in ans to the

to the left and adding the new digit. the process continues until all digits have been processed.

Example Walk through:

For n = 1234

rem = 1234 % 10 = 4 → ans = 0 * 10 + 4 = 4

n = 1234 / 10 = 123

rem = 123 % 10 = 3 → ans = 4 * 10 + 3 = 43

n = 123 / 10 = 12

rem = 12 % 10 = 2 → ans = 43 * 10 + 2 = 432.

n = 12 / 10 = 1

rem = 1 % 10 = 1 → ans = 432 * 10 + 1 = 4321

n = 1 / 10 = 0 (Loop ends).