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EX1:-

```c
#include <stdio.h>
#include <math.h>

int isArmstrong(int num) {
    int originalNum = num;
    int remainder;
    int result = 0;
    int n = 0;
    int temp = num;

    // Count number of digits
    while (temp > 0) {
        temp /= 10;
        n++;
    }

    temp = num;
    while (temp > 0) {
        remainder = temp % 10;
        result += pow(remainder, n);
        temp /= 10;
    }

    return (result == originalNum);
}

int main() {
    int lower, higher;

    printf("Enter two numbers (lower and higher): ");
    scanf("%d %d", &lower, &higher);

    for (int i = lower; i <= higher; ++i) {
        if (isArmstrong(i)) {
            printf("%d ", i);
        }
    }
```

```
Enter two numbers (lower and higher): 1
1000
1 2 3 4 5 6 7 8 9 153 370 371 407
```

```
Enter two numbers (lower and higher): 100
500
153 370 371 407
```

EX2:-

main.c

Share Run

```c
#include <stdio.h>
void transposeMatrix(int matrix[100][100], int r, int c, int
    transpose[100][100]) {
    for (int i = 0; i < r; i++) {
        for (int j = 0; j < c; j++) {
            transpose[j][i] = matrix[i][j];
        }
    }
}
int main() {
    int r, c;
    int matrix[100][100], transpose[100][100];
    printf("Enter number of rows and columns: ");
    scanf("%d %d", &r, &c);
    printf("Enter matrix elements:\n");
    for (int i = 0; i < r; i++) {
        for (int j = 0; j < c; j++) {
            scanf("%d", &matrix[i][j]);
        }
    }
    printf("Original Matrix:\n");
    for (int i = 0; i < r; i++) {
        for (int j = 0; j < c; j++) {
            printf("%d ", matrix[i][j]);
        }
        printf("\n");
```

```
            printf("%d ", matrix[i][j]);
        }
        printf("\n");
    }
    transposeMatrix(matrix, r, c, transpose);
    printf("Transpose Matrix:\n");
    for (int i = 0; i < c; i++) {
        for (int j = 0; j < r; j++) {
            printf("%d ", transpose[i][j]);
        }
        printf("\n");
    }
    return 0;
}
```

```
Enter number of rows and columns: 3 3
Enter matrix elements:
1 0 0
0 1 0
1 0 0
Original Matrix:
1 0 0
0 1 0
1 0 0
Transpose Matrix:
1 0 1
0 1 0
0 0 0


=== Code Execution Successful ===
```

```
Enter number of rows and columns: 2 3
Enter matrix elements:
1 2 3
4 5 6
Original Matrix:
1 2 3
4 5 6
Transpose Matrix:
1 4
2 5
3 6


=== Code Execution Successful ===
```

EX3:-

main.c

Share Run

```c
#include <stdio.h>
void concatenateStrings(char str1[], char str2[], char result[]) {
    int i = 0, j = 0;
    while (str1[i] != '\0') {
        result[i] = str1[i];
        i++;
    }
    while (str2[j] != '\0') {
        result[i] = str2[j];
        i++;
        j++;
    }
    result[i] = '\0';
}
int main() {
    char str1[100], str2[100], result[200];
    printf("Enter first string: ");
    scanf("%s", str1);
    printf("Enter second string: ");
    scanf("%s", str2);
    concatenateStrings(str1, str2, result);
    printf("Concatenated String: %s\n", result);
    return 0;
}
```

Output

```
Enter first string: hello
Enter second string: world
Concatenated String: helloworld


=== Code Execution Successful ===
```

Output

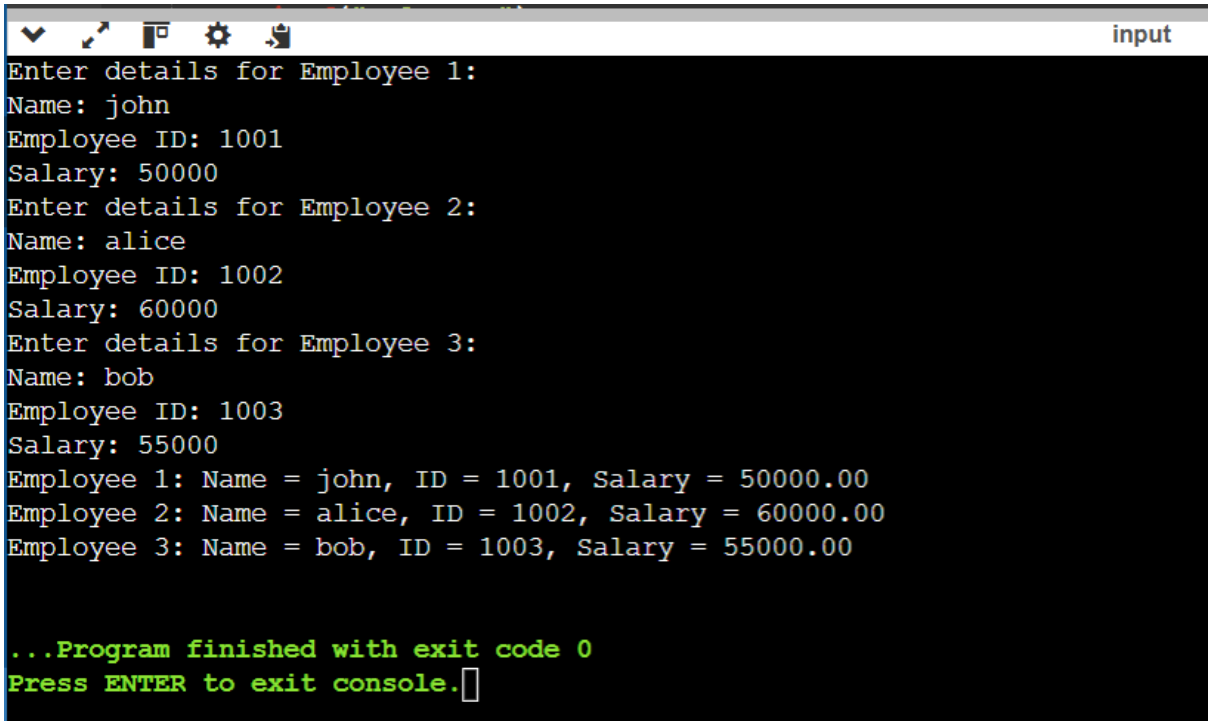
```
Enter first string: Open
Enter second string: AI
Concatenated String: OpenAI


=== Code Execution Successful ===
```

EX4:-

Run | Debug | Stop | Share | Save | { } Beautify

main.c

```c
#include <stdio.h>
struct Employee {
    char name[50];
    int employeeID;
    float salary;
};
int main() {
    struct Employee employees[3];
    for (int i = 0; i < 3; i++) {
        printf("Enter details for Employee %d:\n", i + 1);
        printf("Name: ");
        scanf("%s", employees[i].name);
        printf("Employee ID: ");
        scanf("%d", &employees[i].employeeID);
        printf("Salary: ");
        scanf("%f", &employees[i].salary);
    }
    for (int i = 0; i < 3; i++) {
        printf("Employee %d: Name = %s, ID = %d, Salary = %.2f\n",
               i + 1, employees[i].name, employees[i].employeeID, employees[i].salary);
    }
    return 0;
}
```


input
Enter details for Employee 1:
Name: john
Employee ID: 1001
Salary: 50000
Enter details for Employee 2:
Name: alice
Employee ID: 1002
Salary: 60000
Enter details for Employee 3:
Name: bob
Employee ID: 1003
Salary: 55000
Employee 1: Name = john, ID = 1001, Salary = 50000.00
Employee 2: Name = alice, ID = 1002, Salary = 60000.00
Employee 3: Name = bob, ID = 1003, Salary = 55000.00
...Program finished with exit code 0
Press ENTER to exit console.

Ex5:-

Run | Debug | Stop | Share | Save | { } Beautify

main.c

```c
#include <stdio.h>
void reverseArray(int *arr, int size) {
    int *start = arr;
    int *end = arr + size - 1;
    while (start < end) {
        int temp = *start;
        *start = *end;
        *end = temp;
        start++;
        end--;
    }
}
int main() {
    int size;
    int arr[100];
    printf("Enter the size of the array: ");
    scanf("%d", &size);
    printf("Enter array elements:\n");
    for (int i = 0; i < size; i++) {
        scanf("%d", &arr[i]);
    }
    reverseArray(arr, size);
    printf("Reversed array: ");
    for (int i = 0; i < size; i++) {
        printf("%d ", arr[i]);
    }
    return 0;
}
```

```
Enter the size of the array: 5
Enter array elements:
1 2 3 4 5
Reversed array: 5 4 3 2 1

...Program finished with exit code 0
Press ENTER to exit console.
```