

1- Write a program that takes a number as input and prints each digit in reverse order, one digit per line.

اكتب برنامجًا يأخذ رقمًا كمدخل ويطبع كل رقم بترتيب عكسي، رقمًا واحدًا في كل سطر.

Input

```
Enter a number: 156
```

Output

```
6
5
1
```

Solution

```
// www.gammal.tech
#include <stdio.h>

int main() {
    int number;

    printf("Enter a number: ");
    scanf("%d", &number);

    while (number) {
        printf("%d\n", number % 10);
        number /= 10;
    }

    return 0;
}
```

2- Write a program that calculates the sum of the digits in a given number.

اكتب برنامجاً يقوم بحساب مجموع الأرقام في عدد معين.

Input

```
Enter a number: 12345
```

Output

```
Sum of digits in 12345: 15
```

Solution

```
// www.gammal.tech
#include <stdio.h>

int sumDigits(int number) {
    int sum = 0;

    while (number) {
        sum += number % 10;
        number /= 10;
    }

    return sum;
}

int main() {
    int inputNumber;

    printf("Enter a number: ");
    scanf("%d", &inputNumber);

    int digitSum = sumDigits(inputNumber);

    printf("Sum of digits in %d: %d\n", inputNumber, digitSum);

    return 0;
}
```

3- Write a program that counts the number of even and odd digits in a given number.

اكتب برنامجاً يقوم بحساب عدد الأرقام الزوجية والفردية في عدد معين.

Input

```
Enter a number: 5689
```

Output

```
Number of even digits: 2  
Number of odd digits: 2
```

Solution

```
// www.gammal.tech  
  
#include <stdio.h>  
  
void countEvenOddDigits(int number) {  
    int evenCount = 0, oddCount = 0;  
  
    while (number) {  
        if ((number % 10) % 2 == 0) {  
            evenCount++;  
        } else {  
            oddCount++;  
        }  
  
        number /= 10;  
    }  
  
    printf("Number of even digits: %d\n", evenCount);  
    printf("Number of odd digits: %d\n", oddCount);  
}  
  
int main() {  
    int inputNumber;  
  
    printf("Enter a number: ");  
    scanf("%d", &inputNumber);  
  
    countEvenOddDigits(inputNumber);  
  
    return 0;  
}
```

4- Write a program that prints all prime numbers in a given range.

اكتب برنامجًا يطبع جميع الأعداد الأولية في نطاق معين.

Input

```
Enter the range (start end): 10 20
```

Output

```
Prime numbers between 10 and 20 are:  
11  
13  
17  
19
```

Solution

```
// www.gammal.tech  
  
#include <stdio.h>  
  
int isPrime(int number) {  
    if (number <= 1) {  
        return 0; // Not a prime number  
    }  
  
    for (int i = 2; i <= number / 2; i++) {  
        if (number % i == 0) {  
            return 0; // Not a prime number  
        }  
    }  
  
    return 1; // Prime number  
}  
  
void printPrimesInRange(int start, int end) {  
    printf("Prime numbers between %d and %d are:\n", start, end);  
  
    for (int i = start; i <= end; i++) {  
        if (isPrime(i)) {  
            printf("%d\n", i);  
        }  
    }  
}  
  
int main() {  
    int start, end;  
  
    printf("Enter the range (start end): ");  
    scanf("%d %d", &start, &end);  
  
    printPrimesInRange(start, end);  
  
    return 0;  
}
```

5- Write a program to convert a binary number to its decimal equivalent.

اكتب برنامجًا لتحويل رقم binary إلى مكافئه decimal.

Input

```
Enter a binary number: 111
```

Output

```
Decimal equivalent: 7
```

Solution

```
// www.gammal.tech
#include <stdio.h>

int binaryToDecimal(int binaryNumber) {
    int decimalNumber = 0, base = 1;

    while (binaryNumber) {
        decimalNumber += (binaryNumber % 10) * base;
        binaryNumber /= 10;
        base *= 2;
    }

    return decimalNumber;
}

int main() {
    int binaryNumber;

    printf("Enter a binary number: ");
    scanf("%d", &binaryNumber);

    printf("Decimal equivalent: %d\n", binaryToDecimal(binaryNumber));

    return 0;
}
```

6- Write a program to convert a decimal number to its binary equivalent.

اكتب برنامجًا لتحويل عدد decimal إلى مكافئه binary.

Input

Enter a decimal number: 16

Output

Binary equivalent: 10000

Solution

```
// www.gammal.tech
#include <stdio.h>

void decimalToBinary(int decimalNumber) {
    int binaryNumber[32], index = 0;

    while (decimalNumber > 0) {
        binaryNumber[index] = decimalNumber % 2;
        decimalNumber /= 2;
        index++;
    }

    printf("Binary equivalent: ");

    for (int i = index - 1; i >= 0; i--) {
        printf("%d", binaryNumber[i]);
    }

    printf("\n");
}

int main() {
    int decimalNumber;

    printf("Enter a decimal number: ");
    scanf("%d", &decimalNumber);

    decimalToBinary(decimalNumber);

    return 0;
}
```

7- Write a program that counts the occurrences of a specific digit in a given number.

اكتب برنامجاً يقوم بإحصاء تكرارات رقم معين في رقم معين.

Input

```
Enter a number: 93365
Enter the digit to count: 3
```

Output

```
Occurrences of digit 3 in 93365: 2
```

Solution

```
// www.gammal.tech
#include <stdio.h>

int countDigitOccurrences(int number, int digit) {
    int count = 0;

    while (number) {
        if (number % 10 == digit) {
            count++;
        }

        number /= 10;
    }

    return count;
}

int main() {
    int inputNumber, targetDigit;

    printf("Enter a number: ");
    scanf("%d", &inputNumber);

    printf("Enter the digit to count: ");
    scanf("%d", &targetDigit);

    int occurrences = countDigitOccurrences(inputNumber, targetDigit);

    printf("Occurrences of digit %d in %d: %d\n", targetDigit, inputNumber, occurrences);

    return 0;
}
```

8- Create a program to find the product of the digits of a given number.

إنشاء برنامج لإيجاد ضرب أرقام في عدد معين.

Input

```
Enter a number: 152
```

Output

```
Product of digits: 10
```

Solution

```

// www.gammal.tech

#include<stdio.h>

int main(void) {
    int x, product = 1;
    printf("Enter a number: ");
    scanf("%d", &x);

    while (x) {
        product *= x % 10;
        x /= 10;
    }

    printf("Product of digits: %d\n", product);

    return 0;
}
```

9- Create a program to find the average of the digits in a given number.

إنشاء برنامج لإيجاد متوسط الأرقام في رقم معين.

Input

```
Enter a number: 592
```

Output

```
Average of digits: 5.33
```


Solution

```
// www.gammal.tech

#include<stdio.h>

int main(void) {
    int x, sum = 0, count = 0;
    printf("Enter a number: ");
    scanf("%d", &x);

    while (x) {
        sum += x % 10;
        count++;
        x /= 10;
    }

    double average = (count > 0) ? (double)sum / count : 0;
    printf("Average of digits: %.2lf\n", average);

    return 0;
}
```

10- Write a program to find the difference between the sum of odd digits and even digits in a given number.

اكتب برنامجًا لإيجاد الفرق بين مجموع الأرقام الفردية والأرقام الزوجية في عدد معين.

Input

```
Enter a number: 123456
```

Output

```
Difference between sum of odd and even digits: -3
```

Solution

```
● ● ●  
  
// www.gammal.tech  
  
#include<stdio.h>  
  
int main(void) {  
    int x, sumOdd = 0, sumEven = 0;  
    printf("Enter a number: ");  
    scanf("%d", &x);  
  
    while (x) {  
        int digit = x % 10;  
        if (digit % 2 == 0) {  
            sumEven += digit;  
        } else {  
            sumOdd += digit;  
        }  
        x /= 10;  
    }  
  
    int difference = sumOdd - sumEven;  
    printf("Difference between sum of odd and even digits: %d\n", difference);  
  
    return 0;  
}
```
