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//47
/**
 * C program to check prime, armstrong and perfect numbers using
 functions
 */

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

/* Function declarations */
int isPrime(int num);
int isArmstrong(int num);
int isPerfect(int num);

int main()
{
    int num;

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

    // Call isPrime() functions
    if(isPrime(num))
    {
        printf("%d is Prime number.\n", num);
    }
    else
    {
        printf("%d is not Prime number.\n", num);
    }

    // Call isArmstrong() function
    if(isArmstrong(num))
    {
        printf("%d is Armstrong number.\n", num);
    }
    else
    {
        printf("%d is not Armstrong number.\n", num);
    }

    // Call isPerfect() function
    if(isPerfect(num))
    {
        printf("%d is Perfect number.\n", num);
    }
    else
    {
        printf("%d is not Perfect number.\n", num);
    }

    return 0;
}

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}
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/**
 * Check whether a number is prime or not.
 * Returns 1 if the number is prime otherwise 0.
 */
int isPrime(int num)
{
    int i;

    for(i=2; i<=num/2; i++)
    {
        /*
         * If the number is divisible by any number
         * other than 1 and self then it is not prime
         */
        if(num%i == 0)
        {
            return 0;
        }
    }

    return 1;
}
```

```
/**
 * Check whether a number is Armstrong number or not.
 * Returns 1 if the number is Armstrong number otherwise 0.
 */
int isArmstrong(int num)
{
    int lastDigit, sum, originalNum, digits;
    sum = 0;

    originalNum = num;

    /* Find total digits in num */
    digits = (int) log10(num) + 1;

    /*
     * Calculate sum of power of digits
     */
    while(num > 0)
    {
        // Extract the last digit
        lastDigit = num % 10;

        // Compute sum of power of last digit
        sum = sum + round(pow(lastDigit, digits));
    }
}
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        // Remove the last digit
        num = num / 10;
    }

    return (originalNum == sum);
}

/**
 * Check whether the number is perfect number or not.
 * Returns 1 if the number is perfect otherwise 0.
 */
int isPerfect(int num)
{
    int i, sum, n;
    sum = 0;
    n = num;

    for(i=1; i<n; i++)
    {
        /* If i is a divisor of num */
        if(n%i == 0)
        {
            sum += i;
        }
    }

    return (num == sum);
}

```

Output

```

Enter any number: 11
11 is Prime number.
11 is not Armstrong number.
11 is not Perfect number.

```