// NAME - DISHA UPADHYAY

// UNIVERSITY ROLL NO – 12515000520

// CLASS ROLL NO - 17

// SUBJECT - C PROGRAMMING

// SUBJECT CODE - BCSG 0802

#include <stdio.h>

#include <math.h>

// Function to reverse digits of a number

int reverseDigits(int n) {

int r = 0;

while (n > 0) {

r = r \* 10 + (n % 10);

n /= 10;

}

return r;

}

// Function to check if number is Armstrong

int isArmstrong(int num) {

int original = num, sum = 0, digits = 0;

int temp = num;

while (temp > 0) {

digits++;

temp /= 10;

}

temp = num;

while (temp > 0) {

int d = temp % 10;

sum += pow(d, digits);

temp /= 10;

}

return sum == original;

}

// Function to check if number is Adams Number

int isAdams(int num) {

int square = num \* num;

int reversedNum = reverseDigits(num);

int reversedSquare = reverseDigits(square);

return reversedSquare == (reversedNum \* reversedNum);

}

// Function to check if number is prime

int isPrime(int num) {

if (num <= 1) return 0;

for (int i = 2; i \* i <= num; i++) {

if (num % i == 0) return 0;

}

return 1;

}

// Function to check if number is prime and palindrome

int isPrimePalindrome(int num) {

return isPrime(num) && num == reverseDigits(num);

}

// Main menu-driven program

int main() {

int choice, num;

do {

printf("\n===== MENU =====\n");

printf("1. Check Armstrong Number\n");

printf("2. Check Adams Number\n");

printf("3. Check Prime Palindrome Number\n");

printf("4. Exit\n");

printf("Enter your choice: ");

scanf("%d", &choice);

if (choice == 4) {

printf("Exiting program. Goodbye!\n");

break;

}

printf("Enter a number: ");

scanf("%d", &num);

switch (choice) {

case 1:

if (isArmstrong(num))

printf("%d is an Armstrong number.\n", num);

else

printf("%d is NOT an Armstrong number.\n", num);

break;

case 2:

if (isAdams(num))

printf("%d is an Adams number.\n", num);

else

printf("%d is NOT an Adams number.\n", num);

break;

case 3:

if (isPrimePalindrome(num))

printf("%d is a Prime Palindrome number.\n", num);

else

printf("%d is NOT a Prime Palindrome number.\n", num);

break;

default:

printf("Invalid choice! Please select between 1–4.\n");

}

} while (choice != 4);

return 0;

}