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/*
File name: palindrome.cpp
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Created on: 8/29/2019
Synopsis: This program determines whether the given non-negative integer is a
palindrom.
*/

#include<iostream>
using namespace std;

//Function prototypes
int reversedNumber(int num); //This function prototype reversed the number.
bool isPalindrome(int num);  //This function determine is the number palindrome or
not.

//Do Not modify the main function
int main(){
  int num;

  //Prompt and read in an integer. We assume the integer is non-negative and less
than 2147483647
  cout << "Enter an integer: ";
  cin >> num;
  cout << isPalindrome(num) << endl;

  return 0;
}

// This function, reversedNumber, take an integer as input, and returns the
reversed number

int reversedNumber(int num){

  int reversedNum(0);

  while (num != 0){

    //The code num % 10 find the number that need to be in front and store it to
the reversedNum
    //reversedNum * 10 makes the number to the front.
    reversedNum = reversedNum * 10 + num % 10;
    num = num / 10; //This code reduced the digits in one place and make the second
digits in one.

  }

  return reversedNum;

}

// This function, isPalindrome, takes an integer as input, and returns a boolean
value indicating whether the number is palindrome
bool isPalindrome(int num){

  double rev_Num = reversedNumber(num); //This code call the reversedNumber
                                        /*The code use double type so that the
division
                                          of the reversedNumber and original number
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                                        to be more accurate and precise.
                                */

  //This code the validity of reversedNumber and return either true or false.
  //The code also test the integer is zero or not
  if(rev_Num / num == 1.0 || (num == 0.0 && rev_Num == 0.0)){

    return true;

  }

  return false;

}
```