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package Methods;
import java.util.Scanner;
/**
 * Hexadecimal to binary
 * @author me
 * @course ICS3U
 * @date 22 April 2020
 */
public class HexToBinary {

    public static void main(String args[]) {
        // Call subprogram to convert hex to binary
        hexToBinary();
    }

    public static void hexToBinary() {
        //Get hex number to be converted
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a Hexadecimal number: ");
        String hexNum = sc.next();

        //Convert number as long as it is not "q"
        while(!(hexNum.equals("q"))) {

            //Call on subprogram hexToBin
            String answer = convertHexToBin(hexNum);
            System.out.println("The Binary of that number is: " + answer);
            System.out.print("Enter a Hexadecimal number: ");
            hexNum = sc.next();
        }
        //end program if input is "q"
        System.out.println("Thank You, come again.");
    }

    /*
     * Convert the Hexadecimal number to a binary number.
     */
    public static String convertHexToBin(String hexNum) {
        String result = "";
        String result2 = "";

        //find length of the inputted hex number
    }
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long hexNumLength = hexNum.length();

//counted loop to change each hex character to binary
for(int i = 0; i < hexNumLength; i++) {
    char hexDigit = hexNum.charAt(i);
    if(hexDigit == '0') {
        result2 = "0000";
    }
    if(hexDigit == '1') {
        result2 = "0001";
    }
    if(hexDigit == '2') {
        result2 = "0010";
    }
    if(hexDigit == '3') {
        result2 = "0011";
    }
    if(hexDigit == '4') {
        result2 = "0100";
    }
    if(hexDigit == '5') {
        result2 = "0101";
    }
    if(hexDigit == '6') {
        result2 = "0110";
    }
    if(hexDigit == '7') {
        result2 = "0111";
    }
    if(hexDigit == '8') {
        result2 = "1000";
    }
    if(hexDigit == '9') {
        result2 = "1001";
    }
    if(hexDigit == 'a') {
        result2 = "1010";
    }
    if(hexDigit == 'b') {
        result2 = "1011";
    }
    if(hexDigit == 'c') {
        result2 = "1100";
    }
    if(hexDigit == 'd') {
        result2 = "1101";
    }
    if(hexDigit == 'e') {
        result2 = "1110";
    }
}

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    }  
    if(hexDigit == 'f') {  
        result2 = "1111";  
    }  
    //Combine all binary conversions  
    result = result + result2;  
}  
return result;  
}  
}
```