REVERSE THE BITS IN AN INTEGER

REVERSE THE BITS IN AN INTEGER

GET THE BITS ONE AT A TIME FROM
THE RIGHT MOST END

SHIFT THE BIT EXTRACTED FROM THE
ORIGINAL NUMBER INTO THE RESULT
FROM THE RIGHT

SHIFT THE ORIGINAL NUMBER
RIGHT TO EXTRACT THE NEW
RIGHT MOST BIT

SHIFT THE RESULT NUMBER LEFT TO
MAKE ROOM TO GET THE NEW
RIGHTMOST BIT

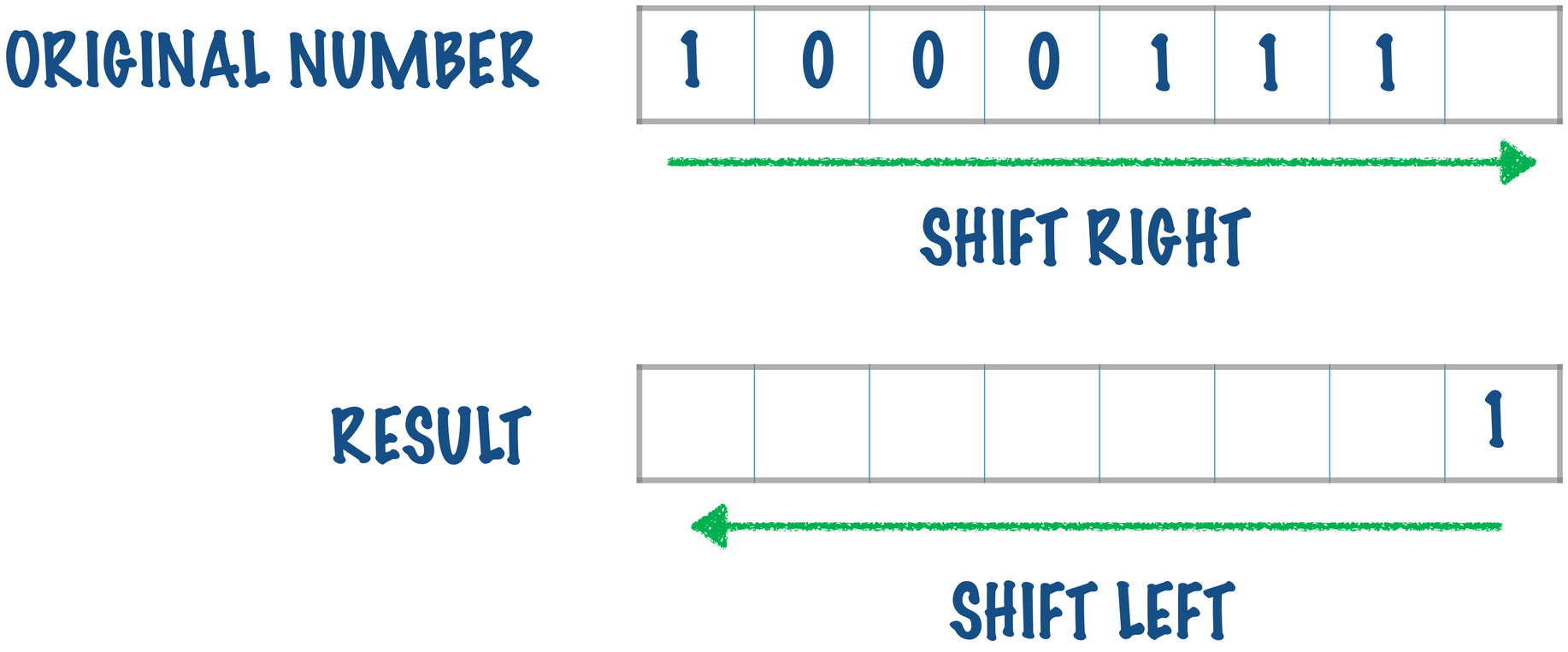
REVERSE THE BITS IN AN INTEGER

ORIGINAL NUMBER

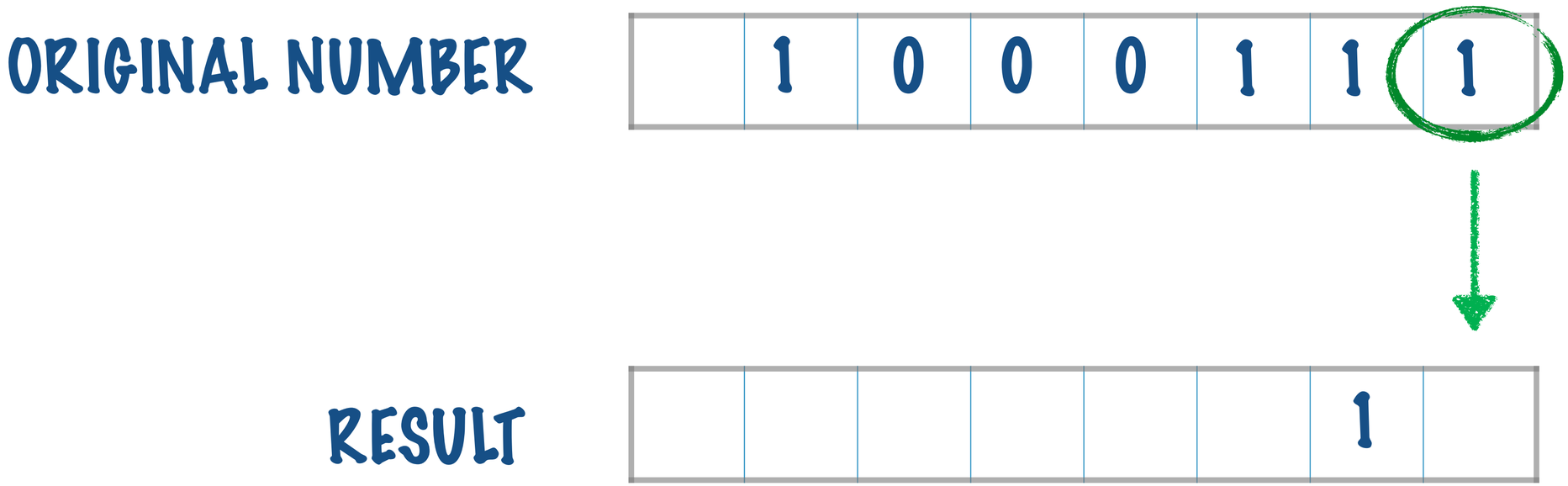
RESULT

EXTRACT THE RIGHT MOST BIT AND ADD IT TO THE RIGHT MOST POSITION OF THE RESULT

REVERSE THE BITS IN AN INTEGER

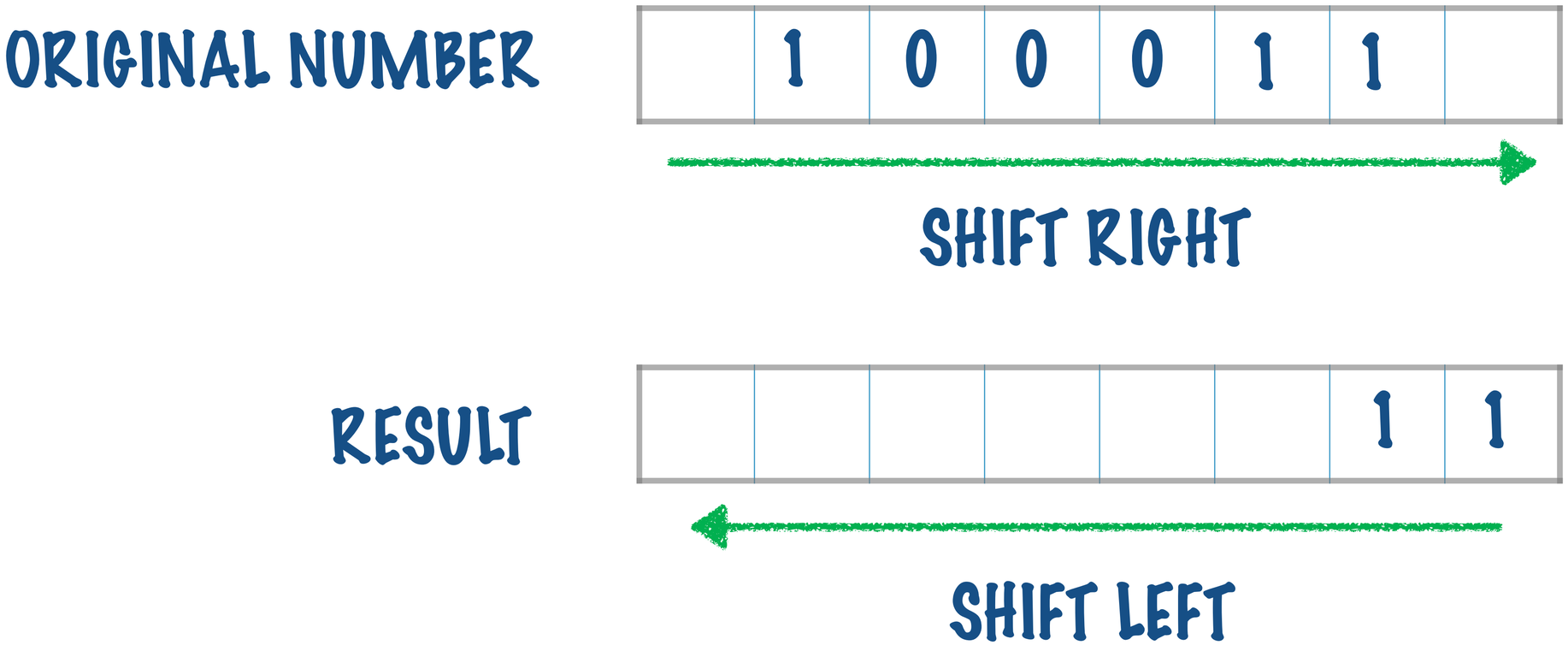


REVERSE THE BITS IN AN INTEGER

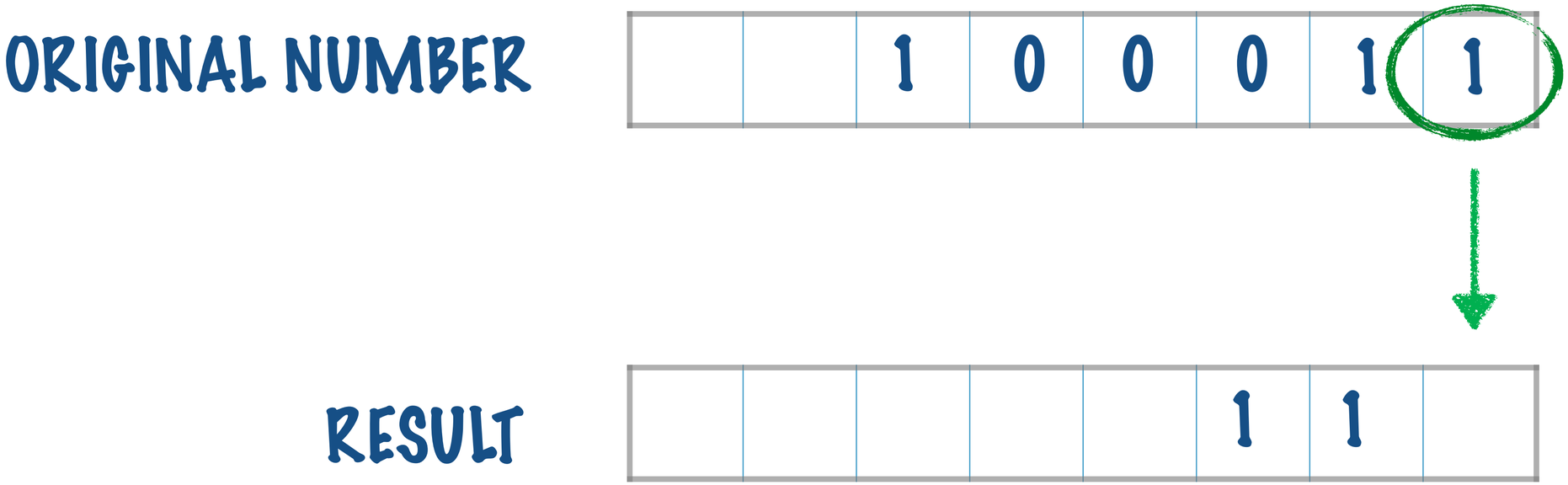


ONCE MORE EXTRACT THE RIGHT MOST BIT AND ADD IT TO THE RIGHT MOST POSITION OF THE RESULT

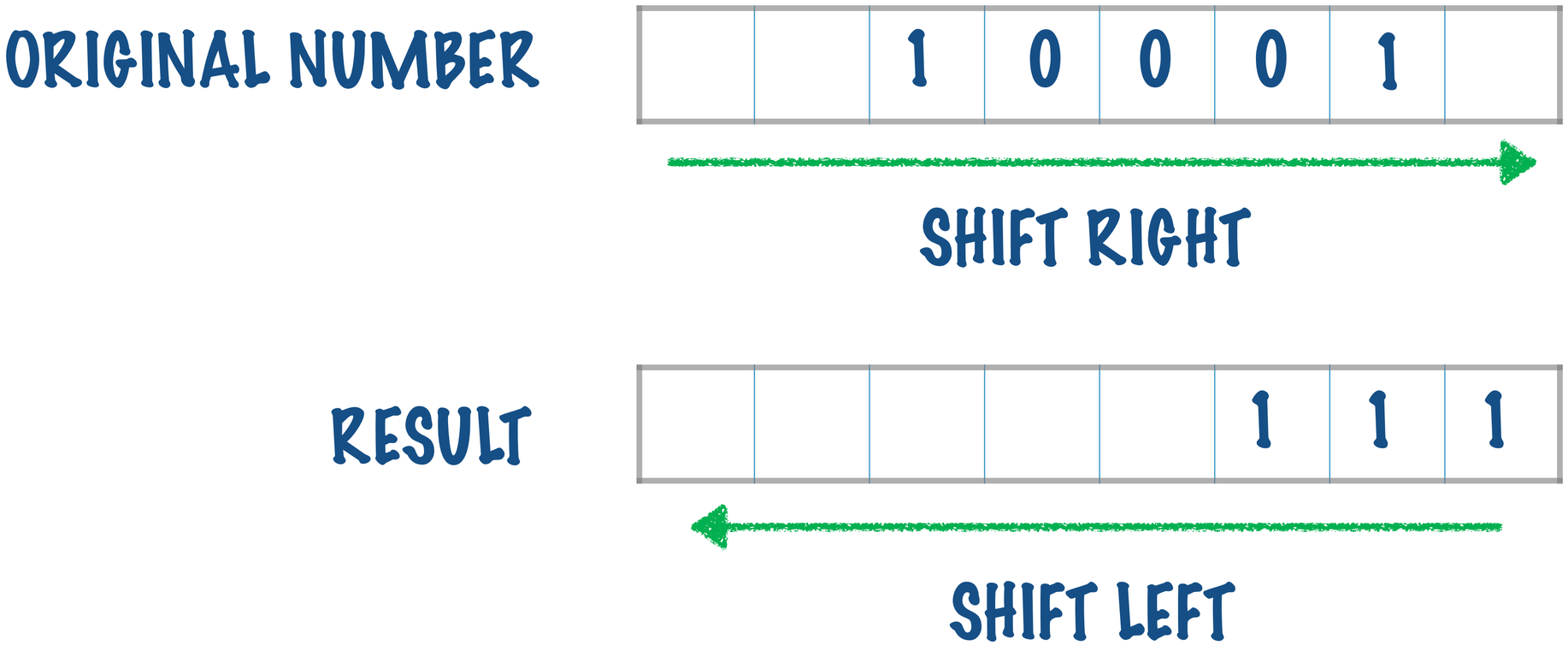
REVERSE THE BITS IN AN INTEGER



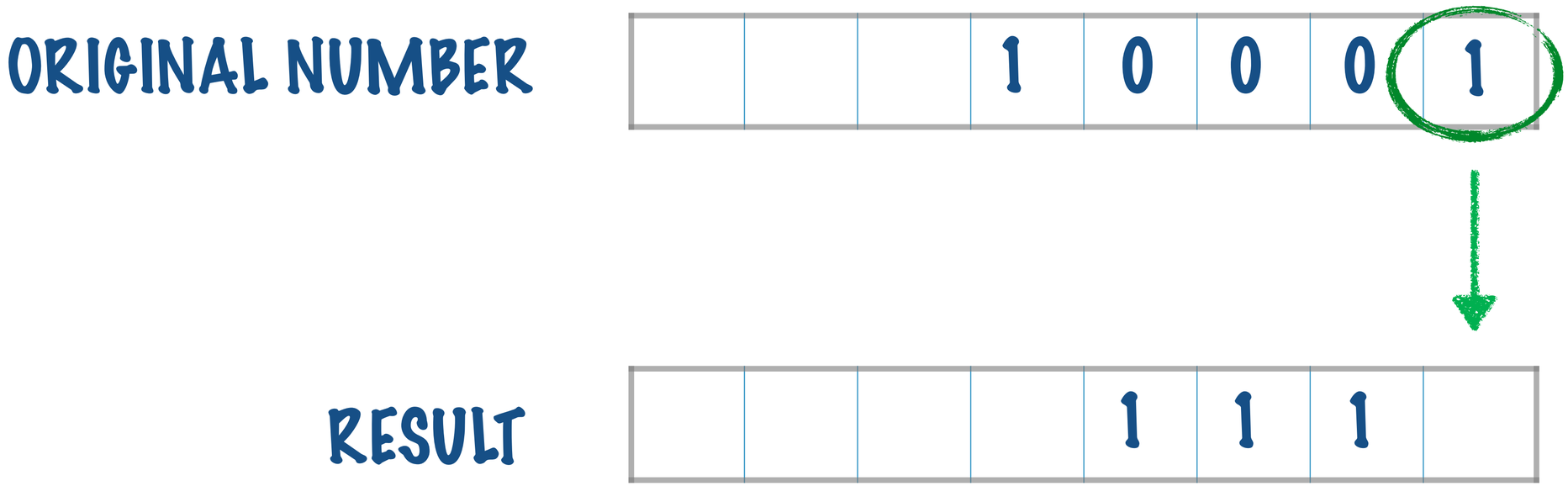
REVERSE THE BITS IN AN INTEGER



REVERSE THE BITS IN AN INTEGER

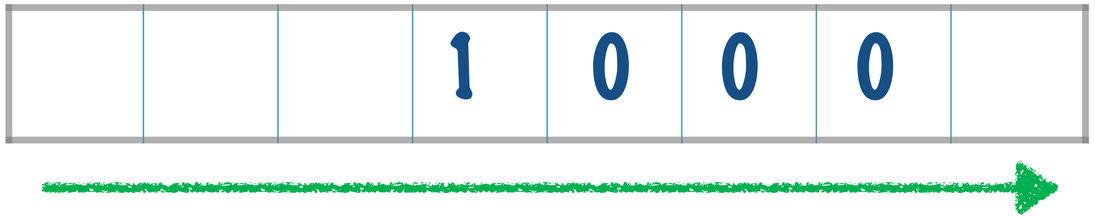


REVERSE THE BITS IN AN INTEGER

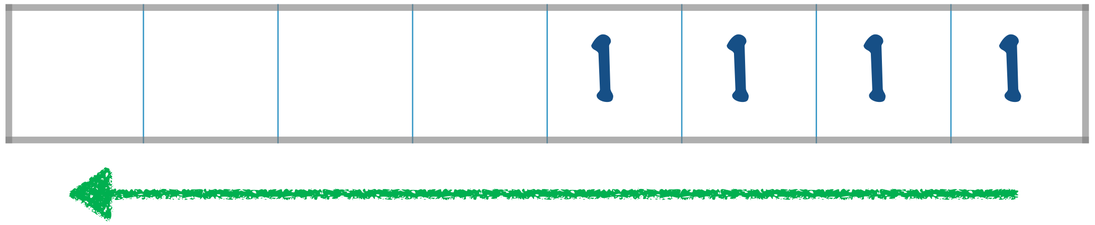


REVERSE THE BITS IN AN INTEGER

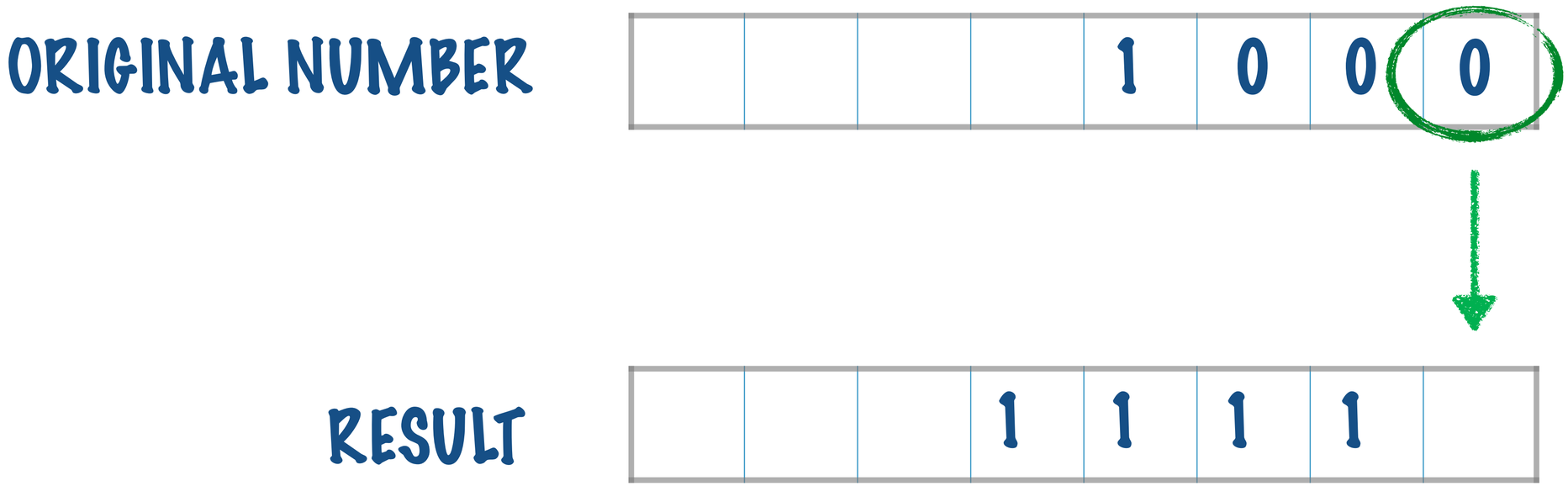
ORIGINAL NUMBER



RESULT

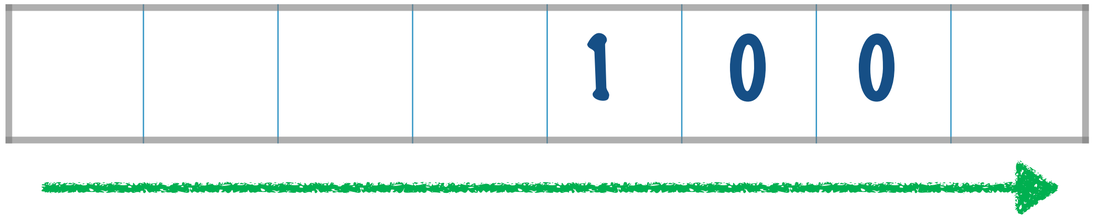


REVERSE THE BITS IN AN INTEGER

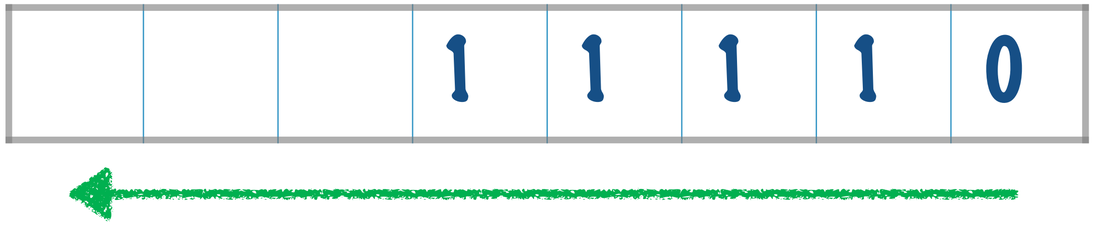


REVERSE THE BITS IN AN INTEGER

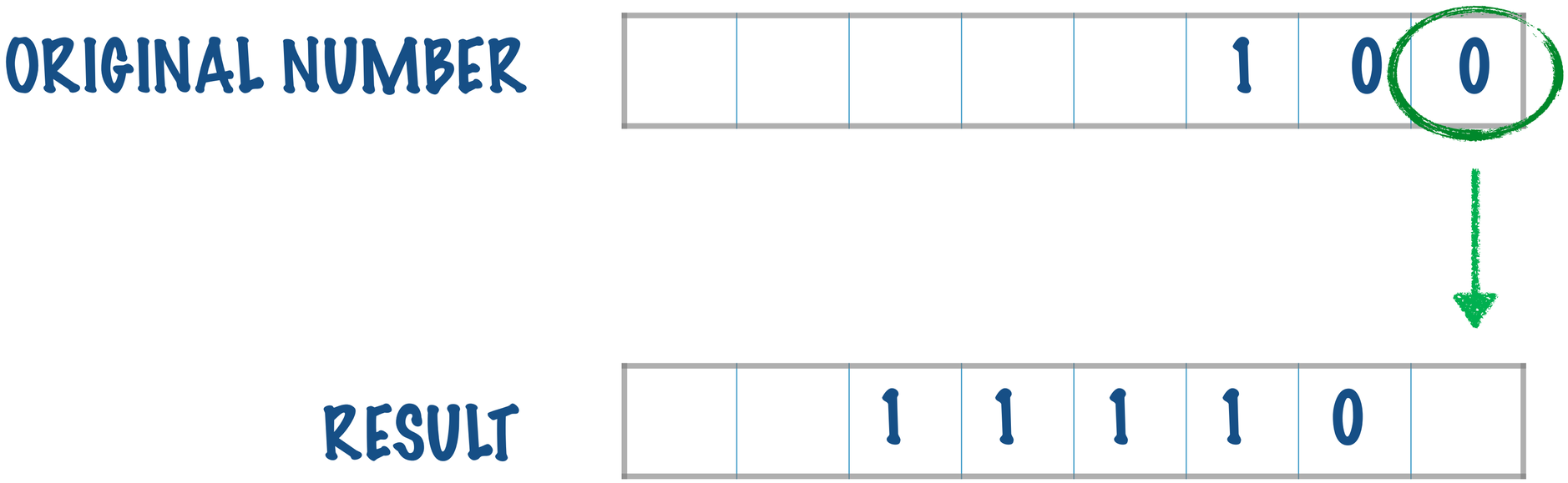
ORIGINAL NUMBER



RESULT

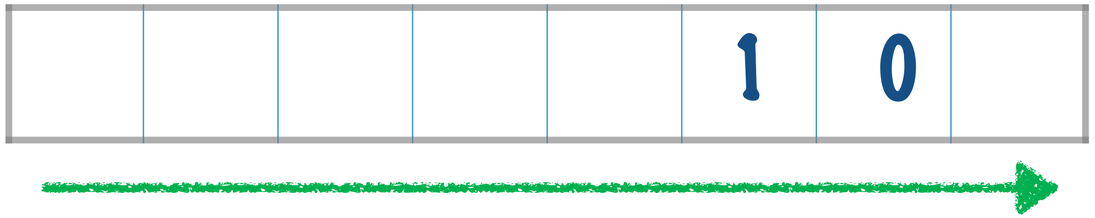


REVERSE THE BITS IN AN INTEGER

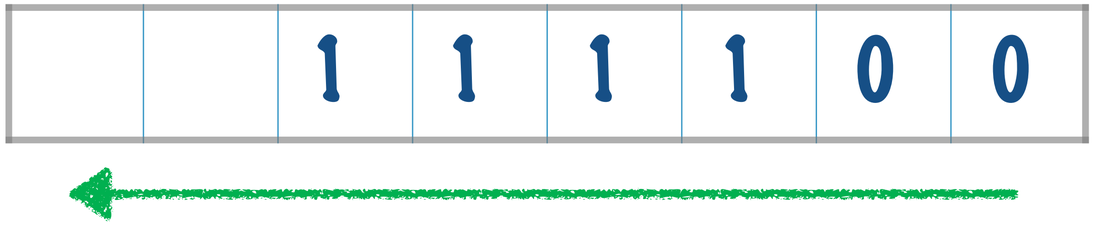


REVERSE THE BITS IN AN INTEGER

ORIGINAL NUMBER

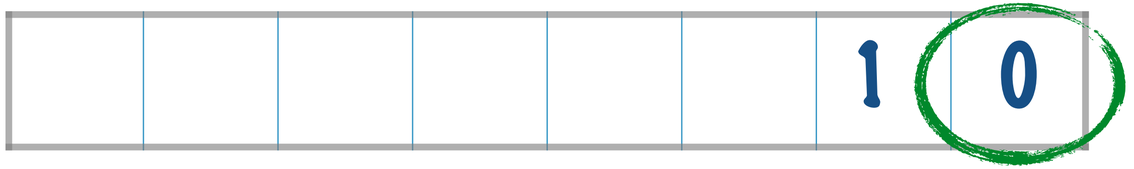


RESULT



REVERSE THE BITS IN AN INTEGER

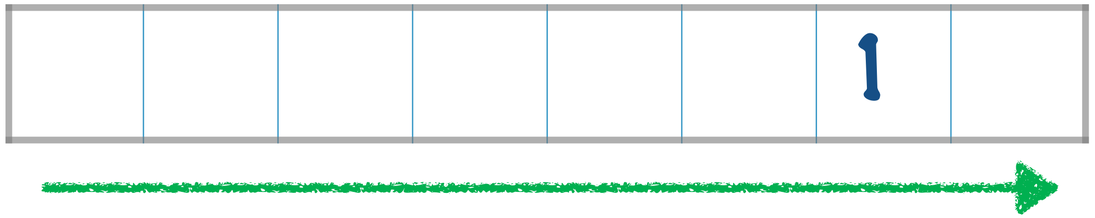
ORIGINAL NUMBER



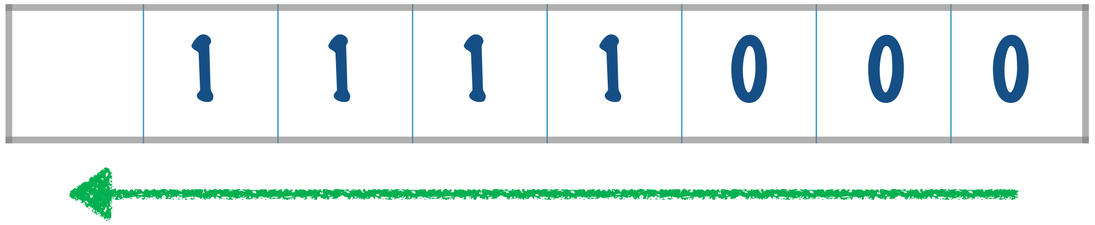
RESULT

REVERSE THE BITS IN AN INTEGER

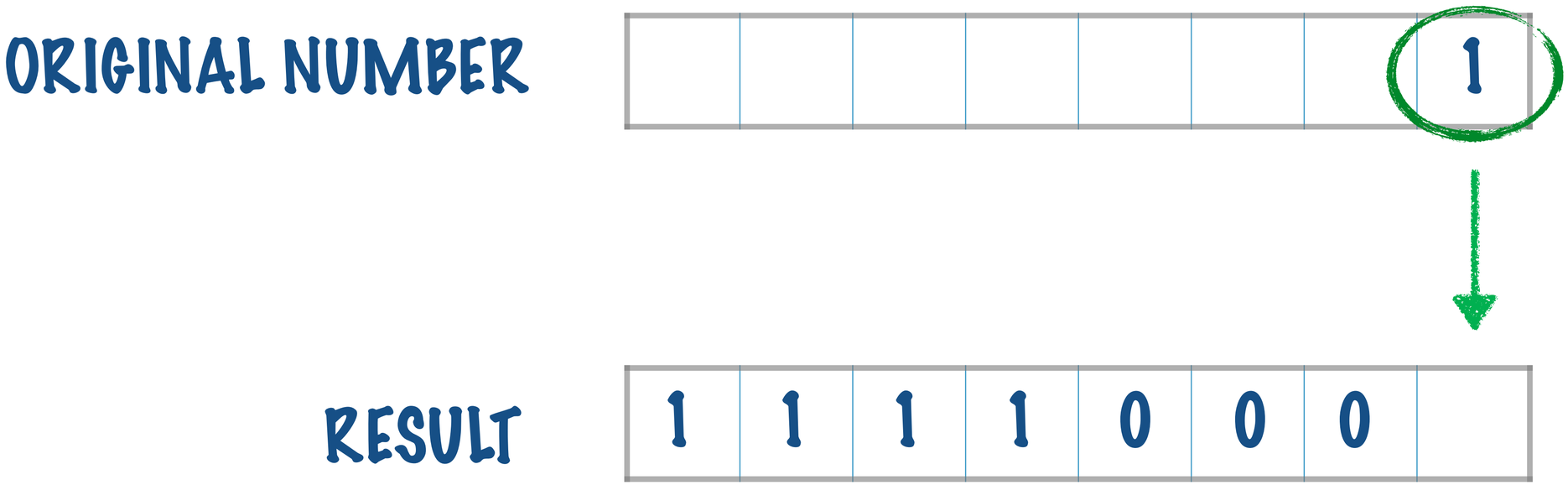
ORIGINAL NUMBER



RESULT



REVERSE THE BITS IN AN INTEGER



REVERSE THE BITS IN AN INTEGER

ORIGINAL NUMBER

RESULT

DONE! RESULT HOLDS ALL THE BITS IN THE REVERSE ORDER!

REVERSE THE BITS IN AN INTEGER

```c
int reverse_bits(int num) {
  int reverse_num = 0;
  unsigned int count = sizeof(int) * 8 - 1;

  while (num != 0) {
    int last_bit = num & 1;
    reverse_num = reverse_num | last_bit;
    reverse_num = reverse_num << 1;
    num = num >> 1;
    count--;
  }

  reverse_num = reverse_num << count;

  return reverse_num;
}
```

INITIALIZE THE RESULT

COUNTER TO TRACK THE NUMBER OF BITS IN THE INTEGER - THIS ALLOWS US TO SHORT CIRCUIT OUT OF THE REVERSAL

EXTRACT THE RIGHT MOST BIT

ADD IT TO THE RIGHTMOST BIT OF THE RESULT

SHIFT THE RESULT LEFT

SHIFT THE ORIGINAL NUMBER RIGHT

IF THE ORIGINAL NUMBER HAS ONLY ZEROES SHIFT LEFT THE REMAINING BITS