* An instruction that tells a cpu to begin executing a different part of a **program** rather than executing statements one-by-one.
* Types of branching:

1. Jumps
2. Calls
3. Interrupts

**Difference between jumps and calls:**

|  |  |
| --- | --- |
| **Jumps** | **Calls** |
| 1. Jumps are one way trips 2. Jumps doesn’t return back 3. Return address is not stored in stack 4. Only PC is effected | 1. Calls are two way trips 2. Calls return back 3. Subroutine return address is   stored in stack   1. Both PC and SP registers are   effected |

**Categories of jumps:**

1. Short (-128 to 127)
2. Absolute (2KB)
3. Long (64KB)

Programs

1. Write an alp to increment the r0 register from 0 to 20d
2. Write an alp to decrement the r0 register from 10d to 0
3. Write an alp to count the number of binary 1’s in r0 register and store the count in r5 register

7 6 5 4 3 2 1 0

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 |

R0

Assignment:

Let the assembler locate the string ‘EMBEDDED’ in code memory.

write a program to transfer the bytes into RAM locations starting at 40H.