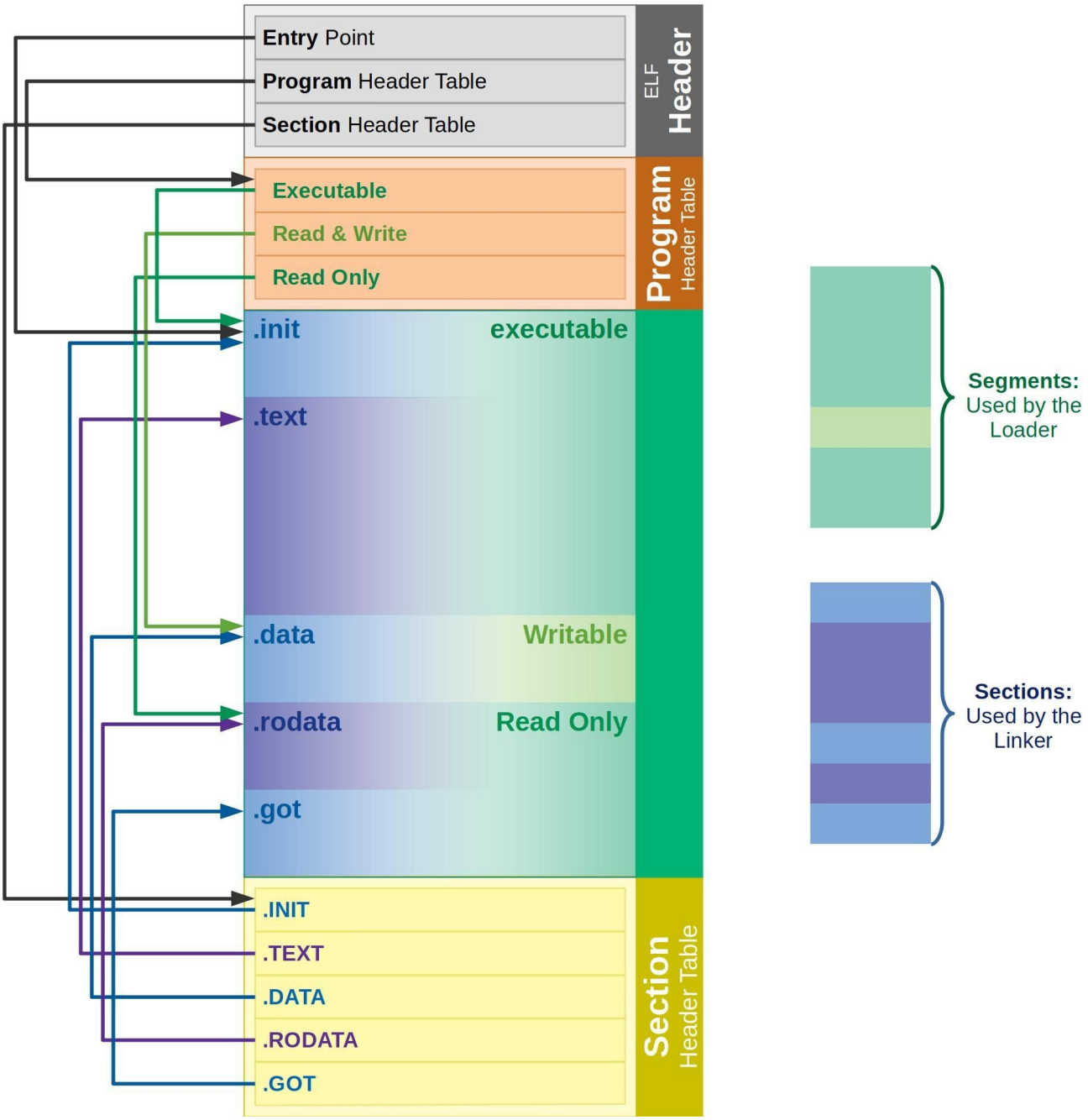
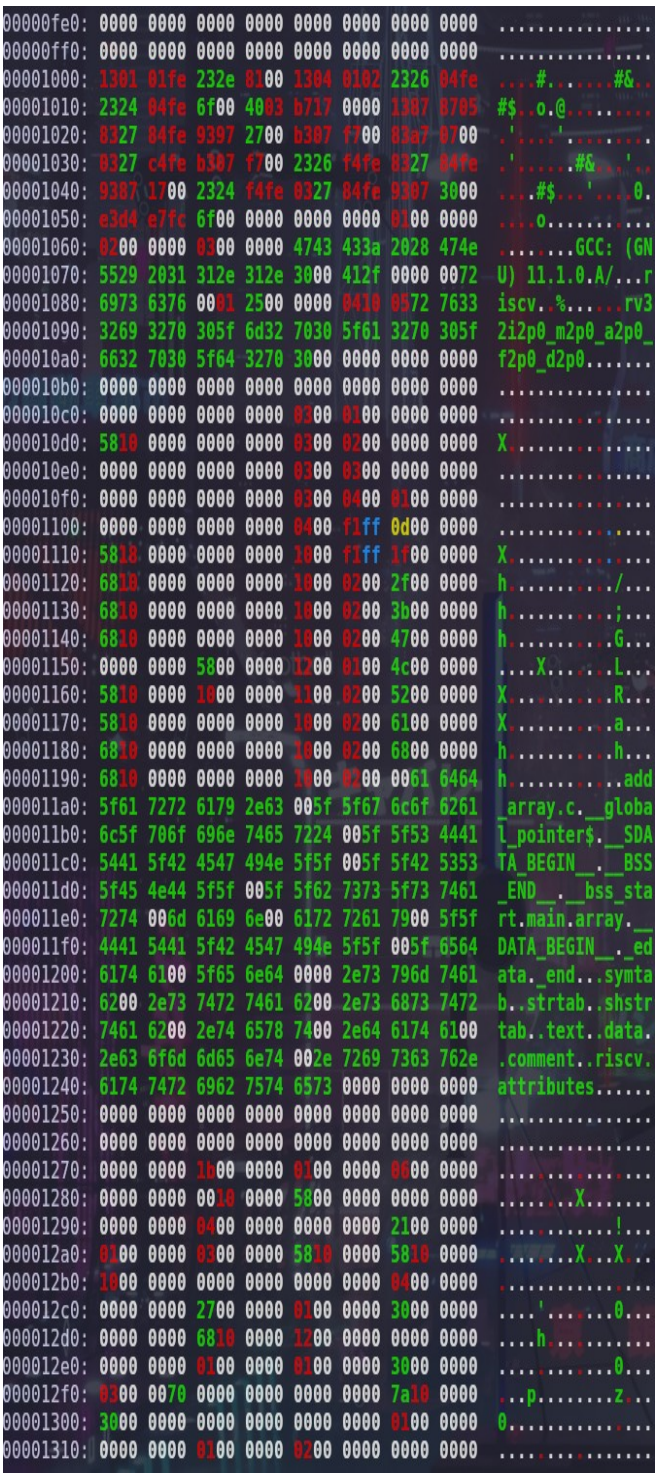
FORMATO ELF-32

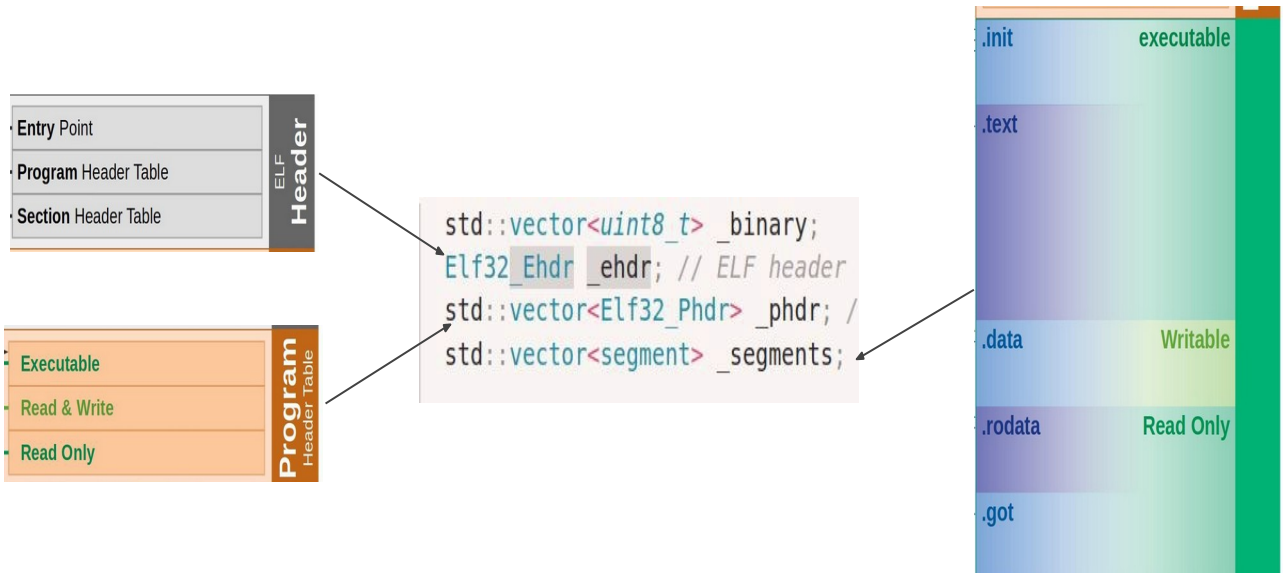


OBJETIVO AL CARGAR BINARIO

memory
_binary
_ehdr
_phdr
_segments



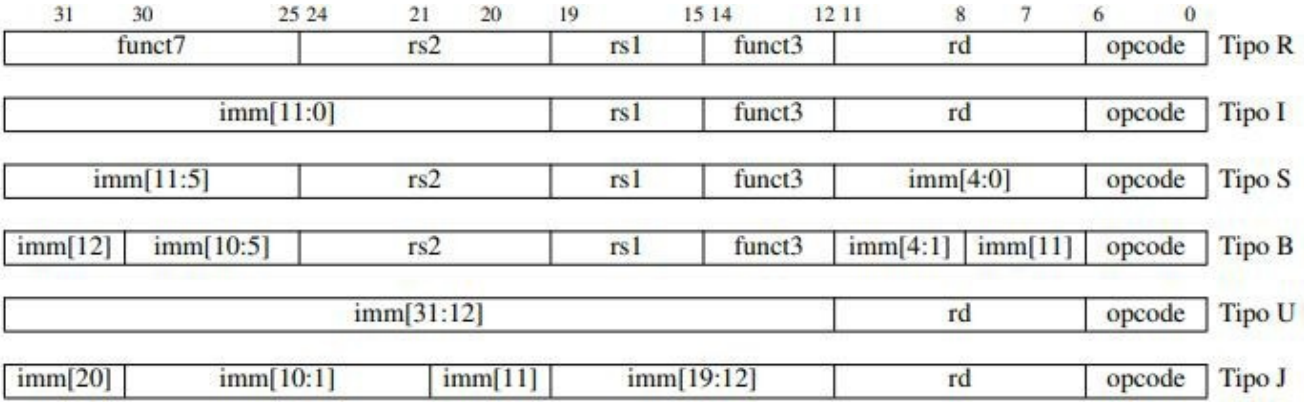
DUMPEO DEL BINARIO


Entry Point
Program Header Table
Section Header Table
ELF Header
Executable
Read & Write
Read Only
Program Header Table
std::vector<uint8_t> _binary;
Elf32_Ehdr _ehdr; // ELF header
std::vector<Elf32_Phdr> _phdr; /
std::vector _segments;
.init
executable
.text
.data
Writable
.rodata
Read Only
.got

```
Machine type: 243
Number of Program Headers: 2
Entry Point: 0x0
Segment 0: Type=1, Offset=4096 Bytes, Virtual Address=0x0, Size=88 Bytes
Segment 1: Type=1, Offset=4184 Bytes, Virtual Address=0x1058, Size=16 Bytes
Loading segment at 0x0 with size 88 Bytes
Loading segment at 0x1058 with size 104 Bytes
Segment 1 at 0x0
Size: 88 Bytes

0x0: 13 1 1 fe 23 2e 81 0 13 4 1 2 23 26 4 fe
0x10: 23 24 4 fe 6f 0 40 3 b7 17 0 0 13 87 87 5
0x20: 83 27 84 fe 93 97 27 0 b3 7 f7 0 83 a7 7 0
0x30: 3 27 c4 fe b3 7 f7 0 23 26 f4 fe 83 27 84 fe
0x40: 93 87 17 0 23 24 f4 fe 3 27 84 fe 93 7 30 0
0x50: e3 d4 e7 fc 6f 0 0 0
```

HORA DE VIRTUALIZAR

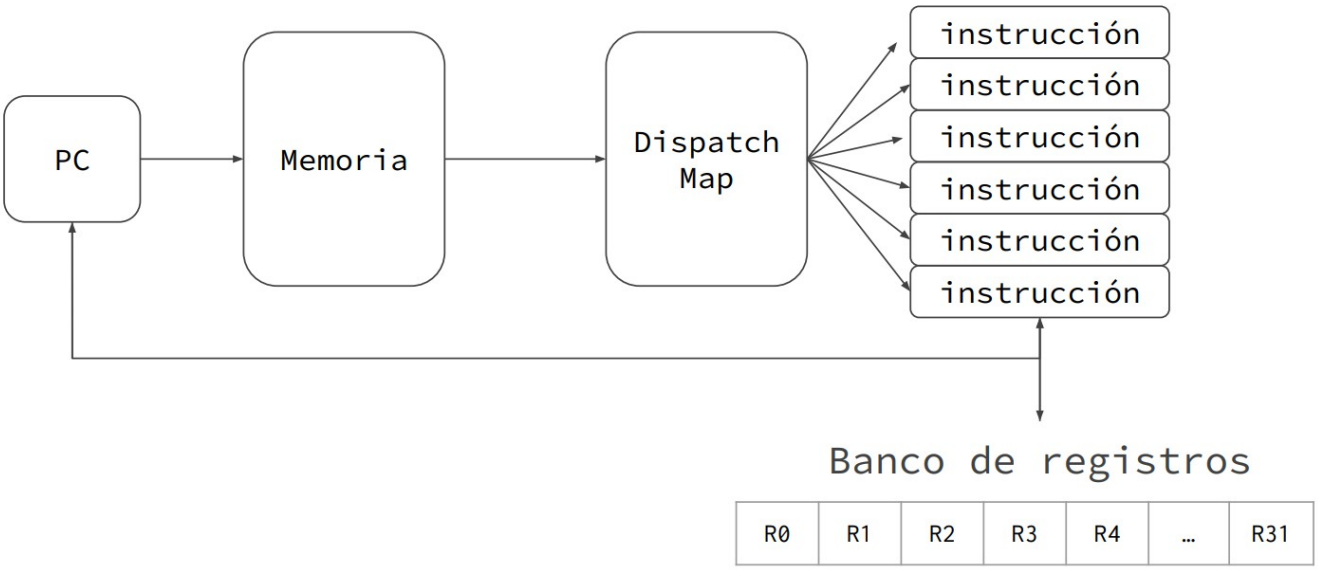


opcode -> Tipo de Instruccion
funct3, funct7 -> Instruccion especifica

DISPATCH MAP

```
std::map <uint8_t, execute_func> dispatch_map = {
    {0b0000011, instrs::load},
    {0b0100011, instrs::store},
    {0b0010011, instrs::alui},
    {0b0110011, instrs::alur},
    {0b0110111, instrs::lui},
    {0b1101111, instrs::jal},
    {0b1100011, instrs::condbranch},
    {0b1100111, instrs::jalr}
};
```

RESULTADO FINAL



ADD ARRAY

```
Instrucrion read
Attempt to read in address: 48
Instrucrion read
Attempt to read in address: 7ffffe8
Attempt to read in address: 4c
Instrucrion read
Attempt to read in address: 50
Instrucrion read
Attempt to read in address: 18
Instrucrion read
Attempt to read in address: 1c
Instrucrion read
Attempt to read in address: 20
Instrucrion read
Attempt to read in address: 7ffffe8
Attempt to read in address: 24
Instrucrion read
Attempt to read in address: 28
Instrucrion read
Attempt to read in address: 2c
Instrucrion read
Attempt to read in address: 1064
Attempt to read in address: 30
Instrucrion read
Attempt to read in address: 7ffffec
Attempt to read in address: 34
Instrucrion read
Attempt to read in address: 38
Instrucrion read
Attempt to read in address: 3c
Instrucrion read
Attempt to read in address: 7ffffe8
Attempt to read in address: 40
Instrucrion read
Attempt to read in address: 44
Instrucrion read
Attempt to read in address: 48
Instrucrion read
Attempt to read in address: 7ffffe8
Attempt to read in address: 4c
Instrucrion read
Attempt to read in address: 50
Instrucrion read
Attempt to read in address: 54
Instrucrion read
Number of executed instructions: 46
Result in a0 (factorial): 0
Attempt to read in address: 7ffffec
Result on stack (add_array): 6
```

FACTORIAL

```
Attempt to read in address: 7ffffa8
Attempt to read in address: 4c
Instrucrion read
Attempt to read in address: 50
Instrucrion read
Attempt to read in address: 34
Instrucrion read
Attempt to read in address: 38
Instrucrion read
Attempt to read in address: 7ffffbc
Attempt to read in address: 3c
Instrucrion read
Attempt to read in address: 40
Instrucrion read
Attempt to read in address: 44
Instrucrion read
Attempt to read in address: 7ffffcc
Attempt to read in address: 48
Instrucrion read
Attempt to read in address: 7ffffc8
Attempt to read in address: 4c
Instrucrion read
Attempt to read in address: 50
Instrucrion read
Attempt to read in address: 34
Instrucrion read
Attempt to read in address: 38
Instrucrion read
Attempt to read in address: 7ffffdc
Attempt to read in address: 3c
Instrucrion read
Attempt to read in address: 40
Instrucrion read
Attempt to read in address: 44
Instrucrion read
Attempt to read in address: 7ffffec
Attempt to read in address: 48
Instrucrion read
Attempt to read in address: 7ffffe8
Attempt to read in address: 4c
Instrucrion read
Attempt to read in address: 50
Instrucrion read
Attempt to read in address: 74
Instrucrion read
Number of executed instructions: 76
Result in a0 (factorial): 120
Attempt to read in address: 7ffffec
Result on stack (add_array): 116
```