Instruction Register (IR) Format for MIPS32

1. R type Instruction Format – 32 Bits

opcode						rs					rt					rd					shant					funct					
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00

Shant – Shift Amount – Not used here.
Funct – Opcode extension to add additional functions
rs and **rt** are the source registers, **rd** is the destination register

2. I type Instruction Format – 32 Bits

opcode						rs					rt					Immediate data															
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00

Immediate data – Data that can be directly used in the program

3. J type Instruction Format – 32 Bits

opcode						Immediate data																									
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00

--- Not used in this project (Unconditional jump types)

Some instructions require two register operands **rs** and **rt** as input, while some require only **rs.**
This is only known after the instruction is decoded.

A Pro Tip:
While decoding is going on, we can prefetch the registers in parallel (it may or may not be required later).
In short, assume by default that the instruction is **R type**.