**Datapath**

The control unit is responsible for distributing the task of registers to the functional blocks. There are always more registers outside the register array that may or may not be accessible by the programmer.

\*The functional blocks collection is what we call arithmetic and logical unit.

**Instructions to the CPU are unique:**   
These are pure binary and are specific. In other meaning we can say instruction set is computer’s vocabulary whereas only instructions are computer’s language.

1. CISC – Complex instructions set computer.

2. RISC – Reduced instruction set computer ex. PowerPC has much less power consumption and achieve more efficiency. These are much simpler than CISC.

We are going to study ARM structure; it will be 16 Bit.

**Types of instructions**

* **Basic Register Micro-operations** – CSCI 150
* **Data transferring** – Main Memory to CPU
* **Jumps operations** – go to specific instructions
  + Subroutine, go to expression etc.
* **Conditional branch** – compare, if condition met perform tasks
  + Tasks can be checking another condition, going to a specific instruction

etc.

**ARM –**

A family of RISC Instructions set architecture (ISA).  
 These are advanced RISC machines which can have 32 bit and 64bit also has   
 16 Bit Thumb instructions set (but in 16 Bit there are quite certain restrictions).

OPCODE: Operational code is basically a machine code/ instructions code where we find exactly which operation is required. (15-10 bits)