

RAM(Random Access Memory) & ROM(Read Only Memory)

RAM is volatile memory that temporarily stores the files you are working on. ROM is non-volatile memory that permanently stores instructions for your computer. (They both are **primary memory**)

Random-access memory (RAM), which stores the code and data that are being actively accessed by the CPU. For example, when a web browser is opened on the computer it takes up memory; this is stored in the RAM until the web browser is closed. It is typically a type of dynamic RAM (DRAM), such as synchronous DRAM (SDRAM), where MOS memory chips store data on memory cells consisting of MOSFETs and MOS capacitors.

Read-only memory (ROM), which stores the BIOS(Basic Input Output Syst) that runs when the computer is powered on or otherwise begins execution, a process known as Bootstrapping, or "booting" or "booting up". The ROM is typically a nonvolatile BIOS memory chip, which stores data on floating-gate MOSFET memory cells.

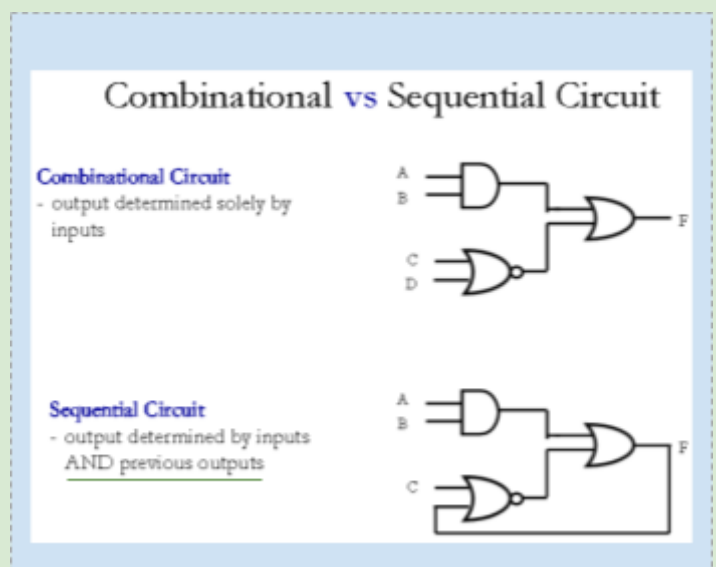
Detail: Buses that connect the CPU to various internal components and to expand cards for graphics and sound.

Sequential vs Random Access Memory (SAM & RAM)

Sequential Access to a data file means that the computer system reads or writes information to the file sequentially, starting from the beginning of the file and proceeding step by step. On the other hand, Random Access to a file means that the computer system can read or write information anywhere in the data file.

Combinational & Sequential Logic Circuit

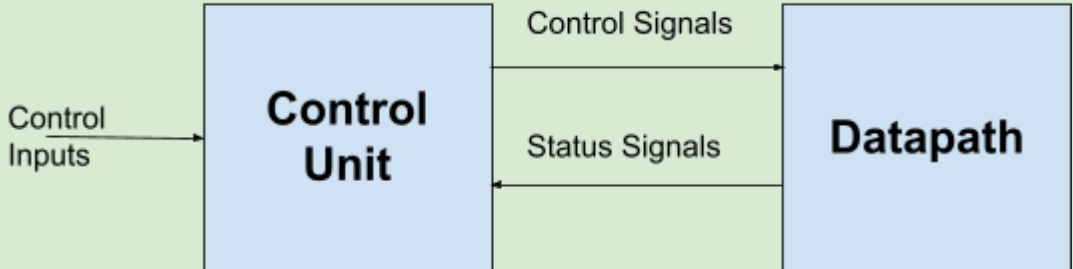
The major difference between combinational and sequential logic circuits is that the **combinational logic circuit consists of only logic gates** while the **sequential logic circuits consist of logic gates and memory elements**.



Register Transfer Level

Register operations: move, copy, shift, count, clear, load, add, subtract

1. Set of registers
2. Operations performed on the data stored in the registers
3. The control supervises the sequence of operations in the system

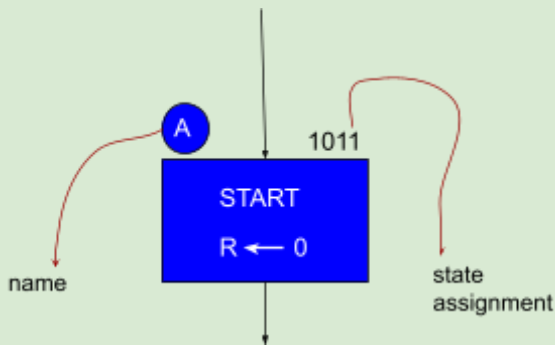


ASM Chart

Algorithmic State Machine (ASM) chart is a special type of flowchart used to define digital hardware algorithms. ASM chart describes the sequence of events and events that occur at state transitions.

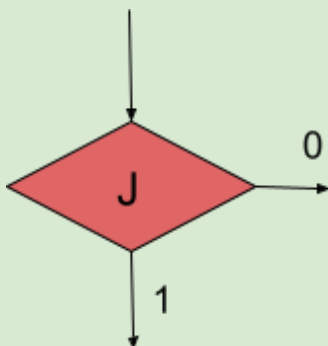
1 decision box ve hepsi same clock'ta yapılıyor.

1. State Box

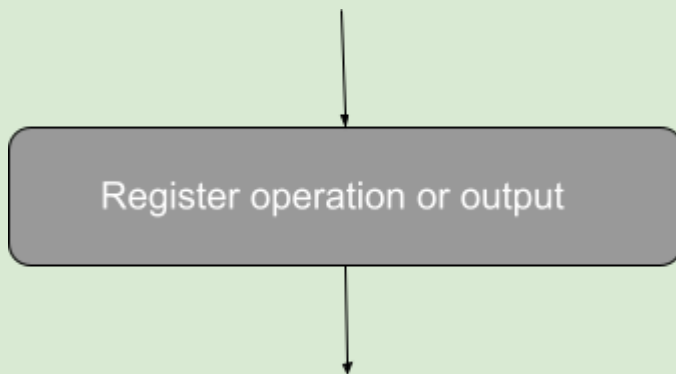


En son reaktör resetleniyor.

2. Decision box

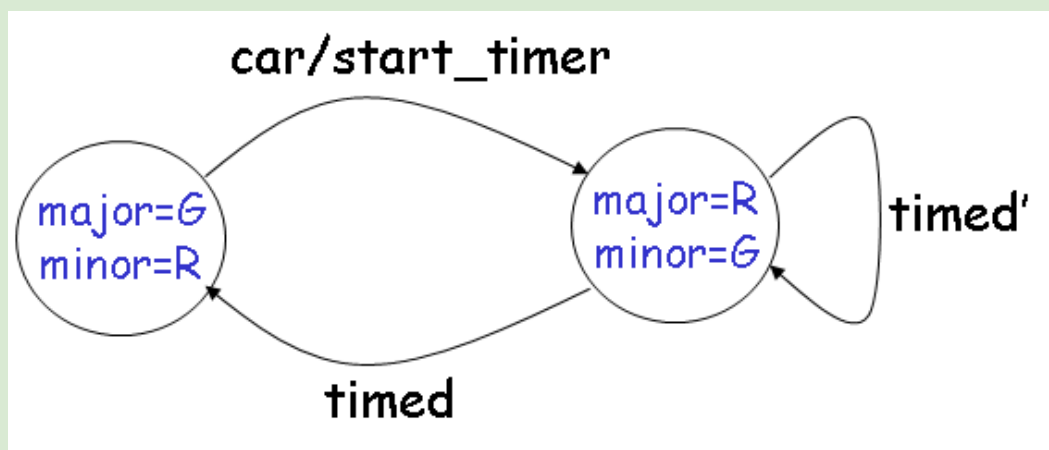
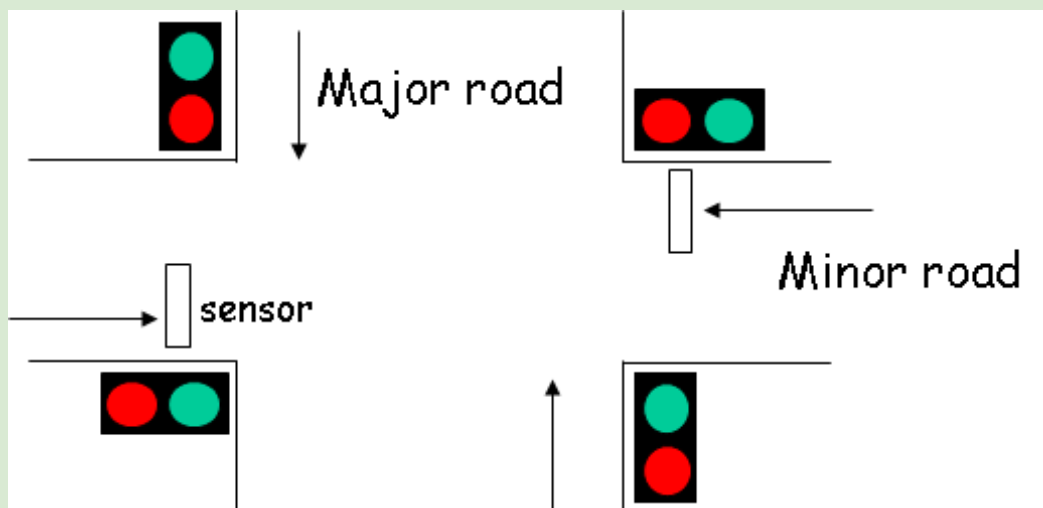


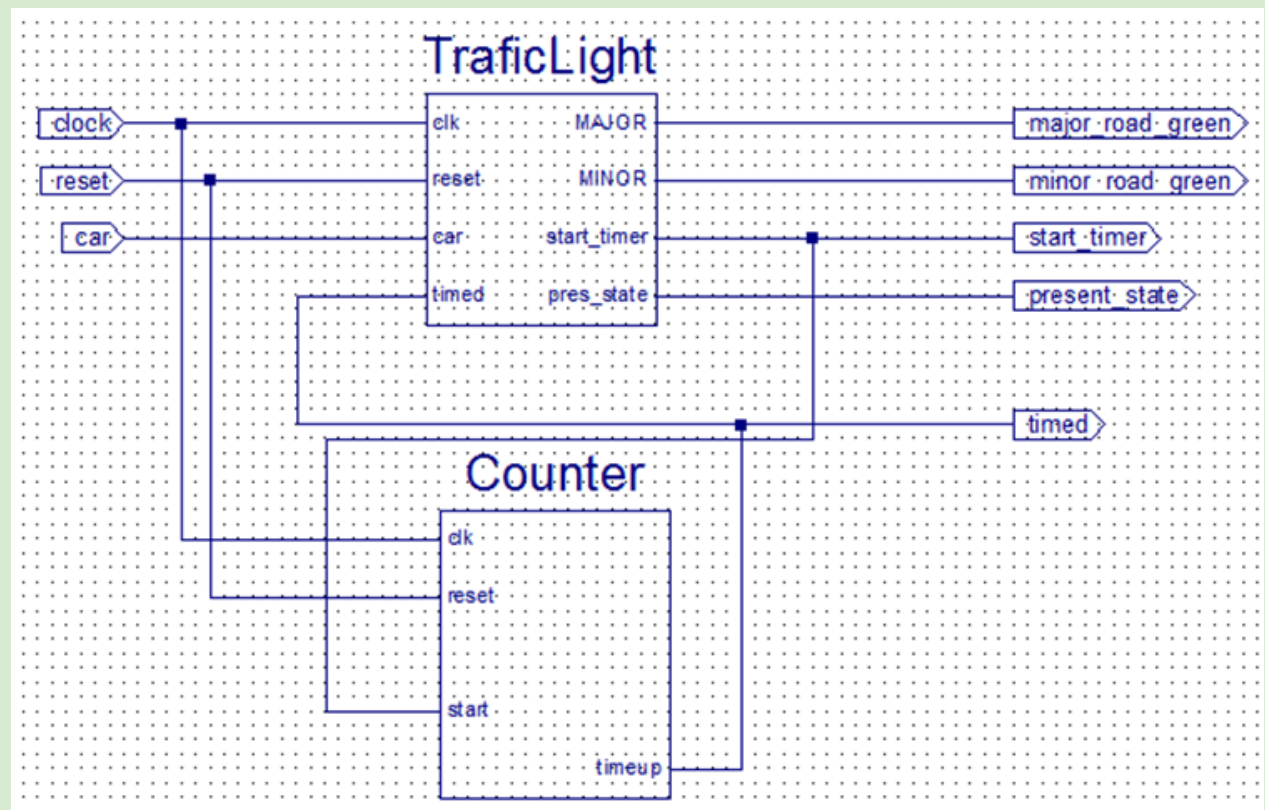
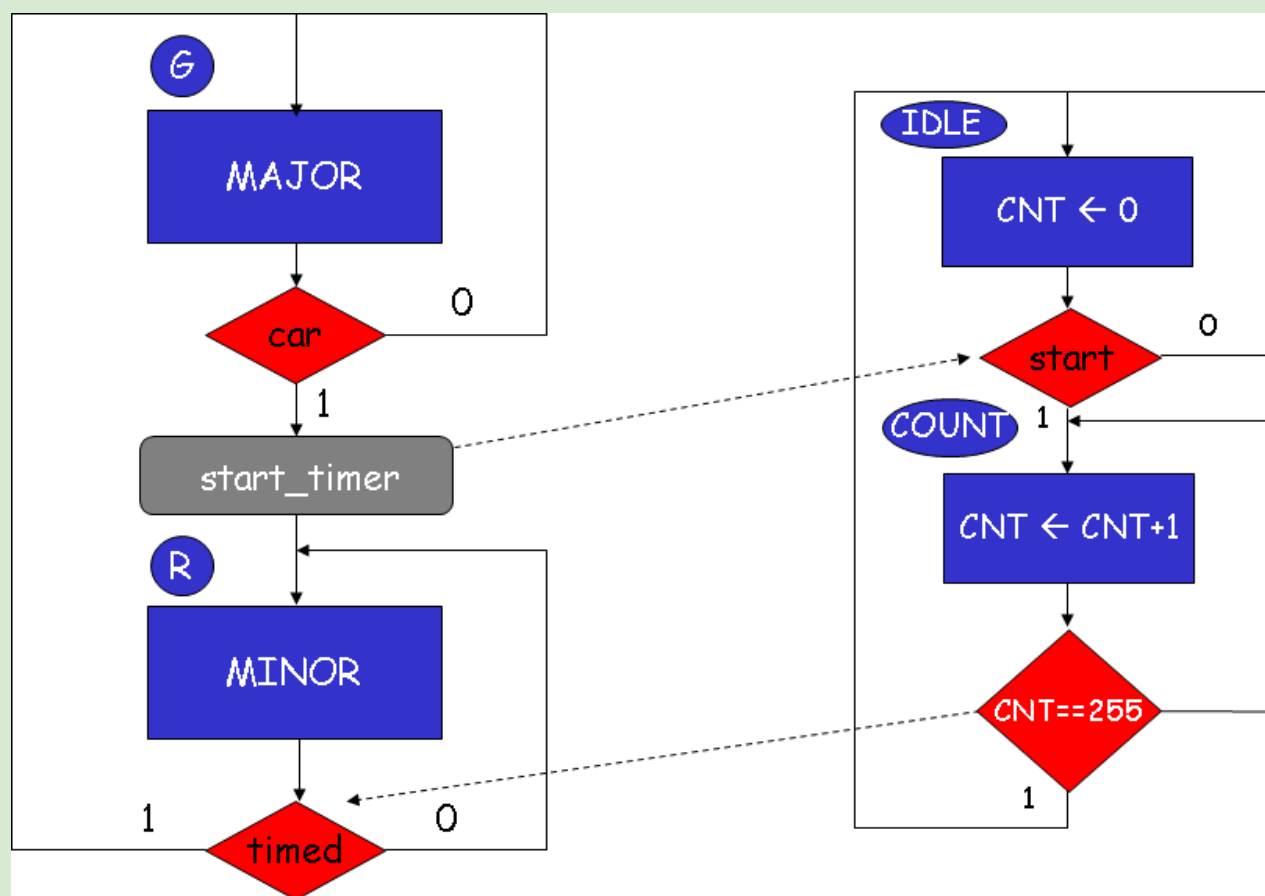
3. Conditional box

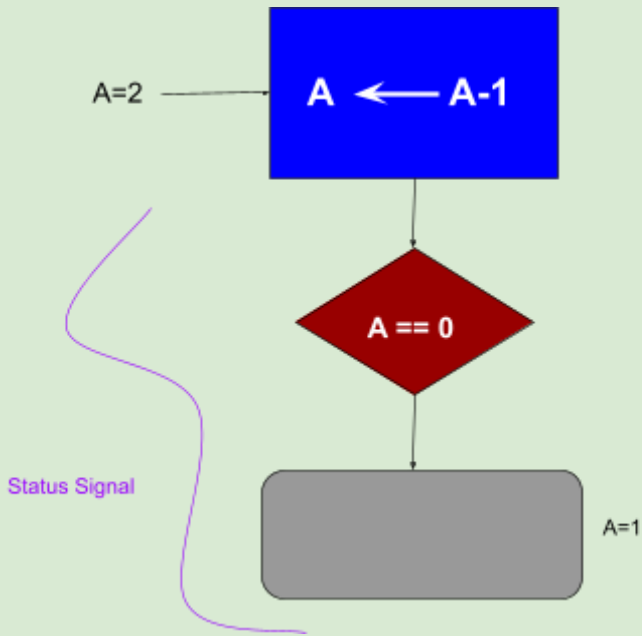


- A conditional box must follow a decision box.
- A con. box is attached to a state box through one or more decision boxes
 - The output signals in the con. output box are asserted in the same clock cycle as those in the state box to which it is attached.
- The con. output signals are sometimes referred to as **Mealy outputs** since they depend on the input signals as well.

Traffic Lights Ex.







Comparisondan sonra değişiyor A'nın değeri çünkü pulse ın bitmesi lazım. Pulse'dan önce A-1 değeri ve A==0 hazır olmalı, değerler hazır olduktan sonra beklenen tek şey pulse(clock cycle).

- Flip-Flop, kararsız, 0-1
- Control yoksa, sadece inputlar geliyorsa ona datapath diyemeyiz!