Assignment -04 (Conditional Statement)

(If…else , case , casex , casez)

Using if else

- **2-to-1 Multiplexer**
- **4-to-1 Multiplexer**
- **8 bit comparator** (Compare two 8-bit numbers and determine if one is greater, lesser, or equal.)
- **Odd-Even Parity Checker** (Check if an 8-bit number is **odd or even** using if-else)
- **Binary to Gray Code Converter** (Convert a **4-bit binary number** into **Gray code**.)
- **Majority Detector** (Design a circuit that checks if the majority of 3 inputs are 1)
- **Binary Coded Decimal (BCD) to 7-Segment Display Decoder** (Convert a **4-bit BCD** input to a **7-segment display output**.)
- **Priority Encoder (8-to-3)** (Encode an **8-bit input** into a **3-bit output**, selecting the highest priority 1)
- **4 Bit Up Down counter (First write up counter and then add control terminal for up down counter)**
- Arithmetic & Logical Unit (Perform basic arithmetic (ADD, SUB, AND, OR) based on a 2-bit control signal.)
- **Priority Encoder (casez) :** Design a priority encoder that outputs the highest priority active input from an 8-bit signal, using casez to simplify handling of don't care conditions.