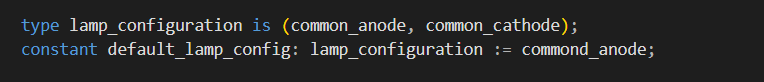
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ADS

HW4: Seven Segment Decoding

11/21/23

1. A screen shot of a computer

   Description automatically generatedConstruct a record type named seven\_segment\_config with members a, b, c, d, e, f, and g all of type std\_logic. This record will be the backbone of the output of your binary to seven segment display decoder. Create an unconstrained array type which uses the newly created record as the base type.
2. Construct an enumerated type called lamp\_configuration which defines the names common\_anode and common\_cathode. Define a constant of this enumerated type called default\_lamp\_config and set it to the lamp configuration of your board.
3. A screen shot of a computer screen

   Description automatically generatedUtilize the array from question 1 define a constant named seven\_segment\_table. Each seven\_segment\_config entry must describe the lamp configuration of a hexadecimal alphabet. An example alphabet is shown on Figure 1.

1. Declare a subtype of natural called hex\_digit which is constrained to the range of the constant created in the previous question. Use this subtype to construct a function with the following prototype.

The function should use the seven\_segment\_table declared in Question 3 and return a seven\_segment\_config entry which activates the lamps for the given lamp\_mode configuration.

A screen shot of a computer

Description automatically generated

1. Construct a function with the prototype which returns a seven\_segment\_config for the given lamp\_mode so that all lamps are off.

A computer screen shot of a program code

Description automatically generated