Main:

First the program executes main and will call the generate function.

Generate function:

1. Creates a stack to store return address
2. Setup temp values for counting and total number of values to generate
3. Jumps into the “For\_loop “
4. In the “For\_loop” there are these else if scenarios:
   1. First determining if going out of bounds of values to generate starting from 0 (bge $t4>=$t2)
   2. Another for loop to determine if a value generated is unique using “val\_check”
      1. If the value is unique it will return and store it (bge $t8, $t2, success)
      2. If the value is not unique it will jump to the beginning of “For\_loop” to generate another value at and test again.
   3. If value in array is zero we can write to it (beq $t5, $zero, else) at location specified and increment the location by 4 and counter by 1.
   4. Once all numbers have been generated we “end\_loop” and lw from our stack pointer to the last return address.

Print\_vals:

1. JAL to “print\_vals”
   1. This will loop through the array until it hits the end of the user indicated generated values integer.
   2. It will return using the $ra address

Find:

1. JAL to “find” this will take a value and compare all values in the array until the end of the user indicated generated values integer.
   1. If the value is not in the array it will return the value of -1 to $v0
   2. If the value is in the array it will return the index of the value in $v0