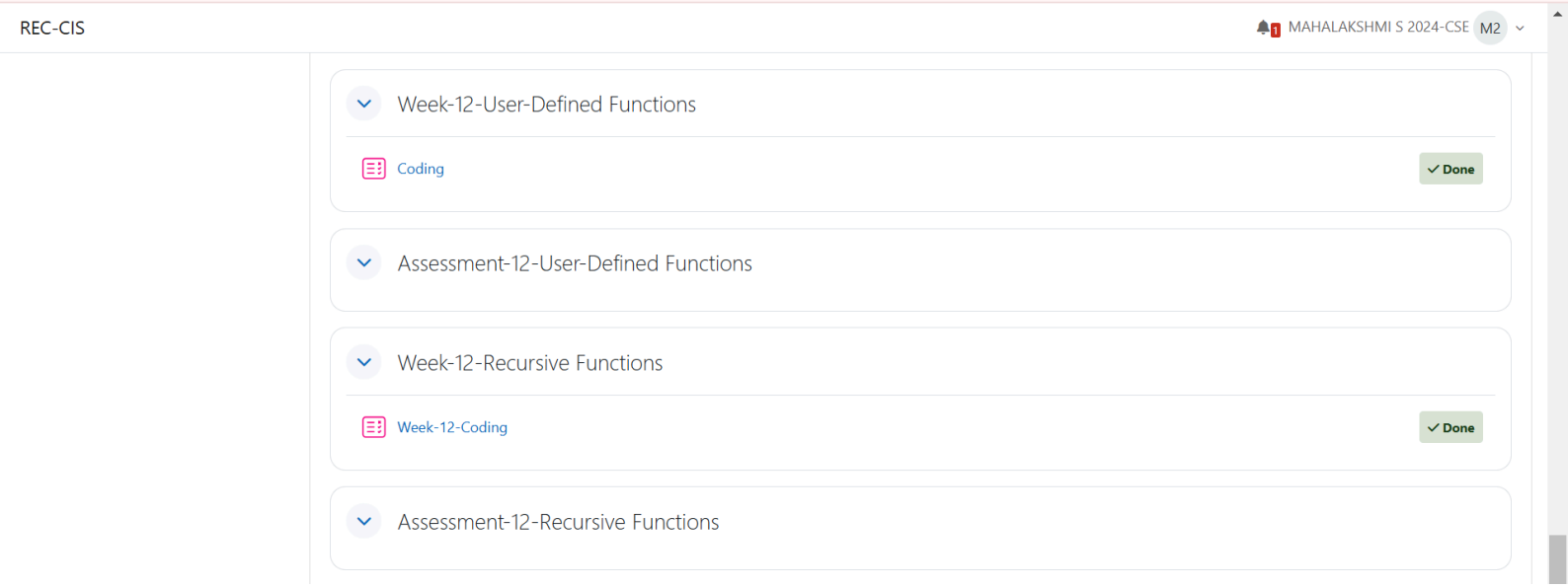
WEEK - 12



User - Defined Functions

```c
/*
 * Complete the 'fourthBit' function below.
 *
 * The function is expected to return an INTEGER.
 * The function accepts INTEGER number as parameter.
 */

int fourthBit(int number)
{
  int binary[32];
  int i = 0;
  while(number > 0){
      binary[i] = number % 2;
      number /= 2;
      i ++;
  }
  if(i >= 4){
      return binary[3];
  }
  else
  return 0;
}
```

	Test	Expected	Got	
✓	printf("%d", fourthBit(32))	0	0	✓
✓	printf("%d", fourthBit(77))	1	1	✓

Passed all tests! ✓

```c
/*
 * Complete the 'pthFactor' function below.
 *
 * The function is expected to return a LONG_INTEGER.
 * The function accepts following parameters:
 *  1. LONG_INTEGER n
 *  2. LONG_INTEGER p
 */

long pthFactor(long n, long p)
{
    int count = 0;
    for(long i = 1; i <= n; i ++){
        if(n % i == 0){
            count ++;
            if(count == p){
                return i;
            }
        }
    }
    return 0;
}
```

	Test	Expected	Got	
✓	printf("%ld", pthFactor(10, 3))	5	5	✓
✓	printf("%ld", pthFactor(10, 5))	0	0	✓
✓	printf("%ld", pthFactor(1, 1))	1	1	✓

Passed all tests! ✓

Recursive Functions

```c
/*
 * Complete the 'myFunc' function below.
 *
 * The function is expected to return an INTEGER.
 * The function accepts INTEGER n as parameter.
 */

int myFunc(int n)
{
    while(n > 1){
        if(n % 20 == 0){
            n /= 20;
        }
        else if(n % 10 == 0){
            n /= 10;
        }
        else{
            return 0;
        }
    }
    return(n == 1) ? 1 : 0;
}
```

	Test	Expected	Got	
✓	printf("%d", myFunc(1))	1	1	✓
✓	printf("%d", myFunc(2))	0	0	✓
✓	printf("%d", myFunc(10))	1	1	✓
✓	printf("%d", myFunc(25))	0	0	✓
✓	printf("%d", myFunc(200))	1	1	✓

Passed all tests! ✓

```c
/*
 * Complete the 'powerSum' function below.
 *
 * The function is expected to return an INTEGER.
 * The function accepts following parameters:
 *  1. INTEGER x
 *  2. INTEGER n
 */

int powerSum(int x, int m, int n)
{
  if(x == 0){
      return 1;
  }
  if(x < 0){
      return 0;
  }
  int count = 0;
  for(int i = m; i * i <= x; i++){
      int power = 1;
      for(int j = 0; j < n; j++){
          power *= i;
      }
      count += powerSum(x - power, i + 1, n);
  }
  return count;
}
```

	Test	Expected	Got	
✓	printf("%d", powerSum(10, 1, 2))	1	1	✓

Passed all tests! ✓