

University of Nevada, Las Vegas Computer Science 477/677 Spring 2025

Assignment 1: Due Saturday January 25, 2025

1. Write a C++ function which determines whether a given integer, which is at least 2, is prime.

```
bool prime(int n)
// input condition: n >= 2
{

}
```

Here is an algorithm you could use. Assume $n \geq 2$. If there is some number d in the range $2 \leq d \leq \sqrt{n}$ such that $n \% d = 0$, then n is not prime; otherwise n is prime.

2. Write a C++ program which uses your function to print all primes less than 100. Here is the output of my program, which prints primes less than 200.

```
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97 101 103
107 109 113 127 131 137 139 149 151 157 163 167 173 179 181 191 193 197 199
```

3. Define a *century* to be a set of 100 consecutive positive numbers ending in a multiple of 100. Prove that every century contains at least one prime.