

# lab8

Lingchen Lou

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## Question 1

```
prime <- function(n){  
  if (n%%1 != 0 | n<0){  
    return(FALSE)  
  }  
  else if (n == 1){  
    return(FALSE)  
  }  
  else if (n==2){  
    return (TRUE)  
  }  
  else {  
    for (i in 2: (sqrt(n))){  
      if(n %% i == 0){  
        return(FALSE)  
      }  
    }  
    return(TRUE)  
  }  
}  
prime(13)
```

```
## [1] TRUE
```

```
prime(0)
```

```
## [1] FALSE
```

```
prime(20)
```

```
## [1] FALSE
```

```
prime(-1)
```

```
## [1] FALSE
```

## Question 2

```
#2  
find_runs <- function(x,k){  
  n = length(x)  
  runs = NULL  
  for (i in 1:(n-k+1)){  
    if (all (x[i:i+k-1] == 1))  
      runs = c(runs, i)  
  }  
}
```

```

    return (runs)
}

find_runs(c(1, 0, 0, 1, 1, 0, 1, 1, 1), 2)

## [1] 3 4 6 7 8

```

### Question 3

```

sort_vec<-function (x){
  if(length(x) <2){
    return (x)
  }
  else{
    for (last in length(x):2){
      for (first in 1:(last -1)){
        if (x[first]> x[first+1]){
          temp <-x[first]
          x[first] = x[first +1]
          x[first +1] = temp
        }
      }
    }
  }
  return (x)
}

sort_vec(c(1,2,3))

## [1] 1 2 3

sort_vec(c(3,2,3))

## [1] 2 3 3

sort_vec(c(1))

## [1] 1

sort_vec(c(4,7,3,11,34,2,1))

## [1] 1 2 3 4 7 11 34

```