Final MATH 208 (Question 3)

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MATH 208 - Final

(A)

```r
longest_sequence_b = function(char_vector){
  characters = c(char_vector[1])
  max = 0
  for (i in 1:length(char_vector)) {
    if (length(characters) > max) {
      max = length((characters))
    }
    if (characters[length(characters)] != char_vector[i]){
      characters = char_vector[i]
    } else {
      characters = c(characters, char_vector[i])
    }
  }
  return(max)
}
vect = c("b", "c", "b", "b", "b", "d", "c", "a", "b", "b", "d", "c")
longest_sequence_b(vect)
```

```
## [1] 3
```

(B)

```r
longest_sequence_b_stop_char = function(char_vector, stopping_character){
  characters = c(char_vector[1])
  max = 0
  for (i in 1:length(char_vector)) {
    if (char_vector[i] == stopping_character){
      return(NA)
    }
    if (length(characters) > max) {
      max = length((characters))
    }
    if (characters[length(characters)] != char_vector[i]){
      characters = char_vector[i]
    } else {
      characters = c(characters, char_vector[i])
    }
```

```
  }
  return(max)
}
vect = c("b", "c", "b", "b", "b", "d", "c", "a", "b", "b", "d", "c")
longest_sequence_b_stop_char(vect, "d")
```

```
## [1] NA
```

(C)

```
longest_sequence_b_target = function(char_vector, target){
  characters = c(char_vector[1])
  max = 0
  for (i in 1:length(char_vector)) {
    if (length(characters) > max) {
      max = length((characters))
    }
    if (char_vector[i] != target){
      characters = c()
    } else {
      characters = c(characters, char_vector[i])
    }
  }
  return(max)
}

longest_run_tibble=function(char_vector,stopping_character){
  letter<-c()
  longest<-c()
  for(i in letters){
    if(i %in% char_vector){
      letter<-c(letter,i)
      longest<-c(longest,longest_sequence_b_target(char_vector,i))
    }
  }
  if(stopping_character %in% char_vector){
    return(tibble(letter=letter,longest=NA))
  }
  return(tibble(letter=letter,longest=longest))
}

longest_run_tibble(c("b", "c", "b", "d", "c", "a", "b", "b", "d","d", "c"),"f")
```

```
## # A tibble: 4 x 2
##   letter longest
##   <chr>    <int>
## 1 a            1
## 2 b            2
## 3 c            1
## 4 d            2
```

(D)
```

```r
longest_run_list<-function(char_vector,stopping_character){
  list_result<-list()
  index = 1
  for (letter in letters) {
    list_result[[index]] = longest_run_tibble(char_vector, letter)
    index = index + 1
  }
  return(list_result)
}

tib<-longest_run_list(c("b", "c", "b", "d", "c", "a", "b", "b", "d", "c"),letters)
length(tib)
```

```
## [1] 26
```