Module 4 Assignment 1: Data Wrangling

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# Module 5 - Assignment 1

## Hagen, Tabitha

### Data Wrangling

# R Setup

### Part 1: Importing the dataset using readxl

knitr::opts\_chunk$set(echo = TRUE)  
library(tidyverse)

## ── Attaching packages ─────────────────────────────────────── tidyverse 1.3.2 ──  
## ✔ ggplot2 3.3.6 ✔ purrr 0.3.4  
## ✔ tibble 3.1.7 ✔ dplyr 1.0.9  
## ✔ tidyr 1.2.0 ✔ stringr 1.4.0  
## ✔ readr 2.1.2 ✔ forcats 0.5.1  
## ── Conflicts ────────────────────────────────────────── tidyverse\_conflicts() ──  
## ✖ dplyr::filter() masks stats::filter()  
## ✖ dplyr::lag() masks stats::lag()

library(readxl)  
  
UN\_migrant <- read\_excel("UN\_migrant.xlsx",   
 sheet = "Table 6", col\_types = c("numeric",   
 "text", "text", "numeric", "text",   
 "numeric", "numeric", "numeric",   
 "numeric", "numeric", "numeric",   
 "numeric", "numeric", "numeric",   
 "numeric", "numeric", "numeric",   
 "numeric", "numeric", "numeric",   
 "numeric", "numeric"), skip = 15)

## Warning: Expecting numeric in R26 / R26C18: got '..'

## Warning: Expecting numeric in U26 / R26C21: got '..'

## Warning: Expecting numeric in V26 / R26C22: got '..'

## Warning: Expecting numeric in R28 / R28C18: got '..'

## Warning: Expecting numeric in R31 / R31C18: got '..'

## Warning: Expecting numeric in S31 / R31C19: got '..'

## Warning: Expecting numeric in T31 / R31C20: got '..'

## Warning: Expecting numeric in U31 / R31C21: got '..'

## Warning: Expecting numeric in V31 / R31C22: got '..'

## Warning: Expecting numeric in R33 / R33C18: got '..'

## Warning: Expecting numeric in S33 / R33C19: got '..'

## Warning: Expecting numeric in T33 / R33C20: got '..'

## Warning: Expecting numeric in U33 / R33C21: got '..'

## Warning: Expecting numeric in V33 / R33C22: got '..'

## Warning: Expecting numeric in R34 / R34C18: got '..'

## Warning: Expecting numeric in S34 / R34C19: got '..'

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## Warning: Expecting numeric in U38 / R38C21: got '..'

## Warning: Expecting numeric in V38 / R38C22: got '..'

## Warning: Expecting numeric in F40 / R40C6: got '..'

## Warning: Expecting numeric in G40 / R40C7: got '..'

## Warning: Expecting numeric in H40 / R40C8: got '..'

## Warning: Expecting numeric in I40 / R40C9: got '..'

## Warning: Expecting numeric in L40 / R40C12: got '..'

## Warning: Expecting numeric in M40 / R40C13: got '..'

## Warning: Expecting numeric in N40 / R40C14: got '..'

## Warning: Expecting numeric in O40 / R40C15: got '..'

## Warning: Expecting numeric in R40 / R40C18: got '..'

## Warning: Expecting numeric in S40 / R40C19: got '..'

## Warning: Expecting numeric in T40 / R40C20: got '..'

## Warning: Expecting numeric in U40 / R40C21: got '..'

## Warning: Expecting numeric in R49 / R49C18: got '..'

## Warning: Expecting numeric in R52 / R52C18: got '..'

## Warning: Expecting numeric in S52 / R52C19: got '..'

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## Warning: Expecting numeric in R54 / R54C18: got '..'

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## Warning: Expecting numeric in T54 / R54C20: got '..'

## Warning: Expecting numeric in U54 / R54C21: got '..'

## Warning: Expecting numeric in V54 / R54C22: got '..'

## Warning: Expecting numeric in R58 / R58C18: got '..'

## Warning: Expecting numeric in R62 / R62C18: got '..'

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## Warning: Expecting numeric in R66 / R66C18: got '..'

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## Warning: Expecting numeric in T72 / R72C20: got '..'

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## Warning: Expecting numeric in V72 / R72C22: got '..'

## Warning: Expecting numeric in R83 / R83C18: got '..'

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## Warning: Expecting numeric in R89 / R89C18: got '..'

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## Warning: Expecting numeric in R93 / R93C18: got '..'

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## Warning: Expecting numeric in T97 / R97C20: got '..'

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## Warning: Expecting numeric in R100 / R100C18: got '..'

## Warning: Expecting numeric in S100 / R100C19: got '..'

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## Warning: Expecting numeric in U100 / R100C21: got '..'

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## Warning: Expecting numeric in R112 / R112C18: got '..'

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## Warning: Expecting numeric in V113 / R113C22: got '..'

## Warning: Expecting numeric in S115 / R115C19: got '..'

## Warning: Expecting numeric in T115 / R115C20: got '..'

## Warning: Expecting numeric in R117 / R117C18: got '..'

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## Warning: Expecting numeric in V117 / R117C22: got '..'

## Warning: Expecting numeric in R120 / R120C18: got '..'

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## Warning: Expecting numeric in R125 / R125C18: got '..'

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## Warning: Expecting numeric in T176 / R176C20: got '..'

## Warning: Expecting numeric in U176 / R176C21: got '..'

## Warning: Expecting numeric in V176 / R176C22: got '..'

## Warning: Expecting numeric in R178 / R178C18: got '..'

## Warning: Expecting numeric in F179 / R179C6: got '..'

## Warning: Expecting numeric in G179 / R179C7: got '..'

## Warning: Expecting numeric in H179 / R179C8: got '..'

## Warning: Expecting numeric in I179 / R179C9: got '..'

## Warning: Expecting numeric in L179 / R179C12: got '..'

## Warning: Expecting numeric in M179 / R179C13: got '..'

## Warning: Expecting numeric in N179 / R179C14: got '..'

## Warning: Expecting numeric in O179 / R179C15: got '..'

## Warning: Expecting numeric in R179 / R179C18: got '..'

## Warning: Expecting numeric in S179 / R179C19: got '..'

## Warning: Expecting numeric in T179 / R179C20: got '..'

## Warning: Expecting numeric in U179 / R179C21: got '..'

## Warning: Expecting numeric in R181 / R181C18: got '..'

## Warning: Expecting numeric in S181 / R181C19: got '..'

## Warning: Expecting numeric in T181 / R181C20: got '..'

## Warning: Expecting numeric in U181 / R181C21: got '..'

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## Warning: Expecting numeric in R183 / R183C18: got '..'

## Warning: Expecting numeric in R185 / R185C18: got '..'

## Warning: Expecting numeric in R191 / R191C18: got '..'

## Warning: Expecting numeric in S191 / R191C19: got '..'

## Warning: Expecting numeric in R193 / R193C18: got '..'

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## Warning: Expecting numeric in T193 / R193C20: got '..'

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## Warning: Expecting numeric in R198 / R198C18: got '..'

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## Warning: Expecting numeric in T198 / R198C20: got '..'

## Warning: Expecting numeric in U198 / R198C21: got '..'

## Warning: Expecting numeric in V198 / R198C22: got '..'

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## Warning: Expecting numeric in V199 / R199C22: got '..'

## Warning: Expecting numeric in R200 / R200C18: got '..'

## Warning: Expecting numeric in S200 / R200C19: got '..'

## Warning: Expecting numeric in T200 / R200C20: got '..'

## Warning: Expecting numeric in U200 / R200C21: got '..'

## Warning: Expecting numeric in V200 / R200C22: got '..'

## Warning: Expecting numeric in R201 / R201C18: got '..'

## Warning: Expecting numeric in R202 / R202C18: got '..'

## Warning: Expecting numeric in S202 / R202C19: got '..'

## Warning: Expecting numeric in T202 / R202C20: got '..'

## Warning: Expecting numeric in U202 / R202C21: got '..'

## Warning: Expecting numeric in V202 / R202C22: got '..'

## Warning: Expecting numeric in R203 / R203C18: got '..'

## Warning: Expecting numeric in S203 / R203C19: got '..'

## Warning: Expecting numeric in T203 / R203C20: got '..'

## Warning: Expecting numeric in U203 / R203C21: got '..'

## Warning: Expecting numeric in V203 / R203C22: got '..'

## Warning: Expecting numeric in R204 / R204C18: got '..'

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## Warning: Expecting numeric in T204 / R204C20: got '..'

## Warning: Expecting numeric in R205 / R205C18: got '..'

## Warning: Expecting numeric in S205 / R205C19: got '..'

## Warning: Expecting numeric in T205 / R205C20: got '..'

## Warning: Expecting numeric in L207 / R207C12: got '..'

## Warning: Expecting numeric in M207 / R207C13: got '..'

## Warning: Expecting numeric in N207 / R207C14: got '..'

## Warning: Expecting numeric in O207 / R207C15: got '..'

## Warning: Expecting numeric in R207 / R207C18: got '..'

## Warning: Expecting numeric in S207 / R207C19: got '..'

## Warning: Expecting numeric in T207 / R207C20: got '..'

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## Warning: Expecting numeric in R208 / R208C18: got '..'

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## Warning: Expecting numeric in R210 / R210C18: got '..'

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## Warning: Expecting numeric in T210 / R210C20: got '..'

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## Warning: Expecting numeric in R211 / R211C18: got '..'

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## Warning: Expecting numeric in U211 / R211C21: got '..'

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## Warning: Expecting numeric in R212 / R212C18: got '..'

## Warning: Expecting numeric in S212 / R212C19: got '..'

## Warning: Expecting numeric in T212 / R212C20: got '..'

## Warning: Expecting numeric in U212 / R212C21: got '..'

## Warning: Expecting numeric in V212 / R212C22: got '..'

## Warning: Expecting numeric in R213 / R213C18: got '..'

## Warning: Expecting numeric in R214 / R214C18: got '..'

## Warning: Expecting numeric in S214 / R214C19: got '..'

## Warning: Expecting numeric in T214 / R214C20: got '..'

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## Warning: Expecting numeric in V214 / R214C22: got '..'

## Warning: Expecting numeric in R215 / R215C18: got '..'

## Warning: Expecting numeric in S215 / R215C19: got '..'

## Warning: Expecting numeric in T215 / R215C20: got '..'

## Warning: Expecting numeric in U215 / R215C21: got '..'

## Warning: Expecting numeric in V215 / R215C22: got '..'

## Warning: Expecting numeric in R216 / R216C18: got '..'

## Warning: Expecting numeric in S216 / R216C19: got '..'

## Warning: Expecting numeric in T216 / R216C20: got '..'

## Warning: Expecting numeric in U216 / R216C21: got '..'

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## Warning: Expecting numeric in R217 / R217C18: got '..'

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## Warning: Expecting numeric in R218 / R218C18: got '..'

## Warning: Expecting numeric in S218 / R218C19: got '..'

## Warning: Expecting numeric in T218 / R218C20: got '..'

## Warning: Expecting numeric in U218 / R218C21: got '..'

## Warning: Expecting numeric in V218 / R218C22: got '..'

## Warning: Expecting numeric in R219 / R219C18: got '..'

## Warning: Expecting numeric in S219 / R219C19: got '..'

## Warning: Expecting numeric in T219 / R219C20: got '..'

## Warning: Expecting numeric in U219 / R219C21: got '..'

## Warning: Expecting numeric in V219 / R219C22: got '..'

## Warning: Expecting numeric in F220 / R220C6: got '..'

## Warning: Expecting numeric in G220 / R220C7: got '..'

## Warning: Expecting numeric in H220 / R220C8: got '..'

## Warning: Expecting numeric in L220 / R220C12: got '..'

## Warning: Expecting numeric in M220 / R220C13: got '..'

## Warning: Expecting numeric in N220 / R220C14: got '..'

## Warning: Expecting numeric in R220 / R220C18: got '..'

## Warning: Expecting numeric in S220 / R220C19: got '..'

## Warning: Expecting numeric in T220 / R220C20: got '..'

## Warning: Expecting numeric in R221 / R221C18: got '..'

## Warning: Expecting numeric in S221 / R221C19: got '..'

## Warning: Expecting numeric in T221 / R221C20: got '..'

## Warning: Expecting numeric in U221 / R221C21: got '..'

## Warning: Expecting numeric in R222 / R222C18: got '..'

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## Warning: Expecting numeric in R223 / R223C18: got '..'

## Warning: Expecting numeric in S223 / R223C19: got '..'

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## Warning: Expecting numeric in V223 / R223C22: got '..'

## Warning: Expecting numeric in S236 / R236C19: got '..'

## Warning: Expecting numeric in T236 / R236C20: got '..'

## Warning: Expecting numeric in R240 / R240C18: got '..'

## Warning: Expecting numeric in S240 / R240C19: got '..'

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## Warning: Expecting numeric in S241 / R241C19: got '..'

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## Warning: Expecting numeric in R242 / R242C18: got '..'

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## Warning: Expecting numeric in R245 / R245C18: got '..'

## Warning: Expecting numeric in S245 / R245C19: got '..'

## Warning: Expecting numeric in R249 / R249C18: got '..'

## Warning: Expecting numeric in S249 / R249C19: got '..'

## Warning: Expecting numeric in T249 / R249C20: got '..'

## Warning: Expecting numeric in U249 / R249C21: got '..'

## Warning: Expecting numeric in V249 / R249C22: got '..'

## Warning: Expecting numeric in R251 / R251C18: got '..'

## Warning: Expecting numeric in S251 / R251C19: got '..'

## Warning: Expecting numeric in T251 / R251C20: got '..'

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## Warning: Expecting numeric in R259 / R259C18: got '..'

## Warning: Expecting numeric in S259 / R259C19: got '..'

## Warning: Expecting numeric in T259 / R259C20: got '..'

## Warning: Expecting numeric in R260 / R260C18: got '..'

## Warning: Expecting numeric in S260 / R260C19: got '..'

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## Warning: Expecting numeric in U260 / R260C21: got '..'

## Warning: Expecting numeric in V260 / R260C22: got '..'

## Warning: Expecting numeric in R262 / R262C18: got '..'

## Warning: Expecting numeric in S262 / R262C19: got '..'

## Warning: Expecting numeric in T262 / R262C20: got '..'

## Warning: Expecting numeric in U262 / R262C21: got '..'

## Warning: Expecting numeric in V262 / R262C22: got '..'

## Warning: Expecting numeric in R263 / R263C18: got '..'

## Warning: Expecting numeric in S263 / R263C19: got '..'

## Warning: Expecting numeric in T263 / R263C20: got '..'

## Warning: Expecting numeric in U263 / R263C21: got '..'

## Warning: Expecting numeric in R264 / R264C18: got '..'

## Warning: Expecting numeric in S264 / R264C19: got '..'

## Warning: Expecting numeric in T264 / R264C20: got '..'

## Warning: Expecting numeric in U264 / R264C21: got '..'

## Warning: Expecting numeric in V264 / R264C22: got '..'

## Warning: Expecting numeric in R265 / R265C18: got '..'

## Warning: Expecting numeric in S265 / R265C19: got '..'

## Warning: Expecting numeric in T265 / R265C20: got '..'

## Warning: Expecting numeric in U265 / R265C21: got '..'

## Warning: Expecting numeric in V265 / R265C22: got '..'

## Warning: Expecting numeric in R266 / R266C18: got '..'

## Warning: Expecting numeric in S266 / R266C19: got '..'

## Warning: Expecting numeric in T266 / R266C20: got '..'

## Warning: Expecting numeric in U266 / R266C21: got '..'

## Warning: Expecting numeric in V266 / R266C22: got '..'

## Warning: Expecting numeric in R267 / R267C18: got '..'

## Warning: Expecting numeric in S267 / R267C19: got '..'

## Warning: Expecting numeric in T267 / R267C20: got '..'

## Warning: Expecting numeric in U267 / R267C21: got '..'

## Warning: Expecting numeric in V267 / R267C22: got '..'

## Warning: Expecting numeric in R268 / R268C18: got '..'

## Warning: Expecting numeric in S268 / R268C19: got '..'

## Warning: Expecting numeric in T268 / R268C20: got '..'

## Warning: Expecting numeric in U268 / R268C21: got '..'

## Warning: Expecting numeric in V268 / R268C22: got '..'

## Warning: Expecting numeric in R269 / R269C18: got '..'

## Warning: Expecting numeric in S269 / R269C19: got '..'

## Warning: Expecting numeric in T269 / R269C20: got '..'

## Warning: Expecting numeric in U269 / R269C21: got '..'

## Warning: Expecting numeric in V269 / R269C22: got '..'

## Warning: Expecting numeric in R270 / R270C18: got '..'

## Warning: Expecting numeric in S270 / R270C19: got '..'

## Warning: Expecting numeric in T270 / R270C20: got '..'

## Warning: Expecting numeric in U270 / R270C21: got '..'

## Warning: Expecting numeric in V270 / R270C22: got '..'

## Warning: Expecting numeric in R271 / R271C18: got '..'

## Warning: Expecting numeric in S271 / R271C19: got '..'

## Warning: Expecting numeric in T271 / R271C20: got '..'

## Warning: Expecting numeric in U271 / R271C21: got '..'

## Warning: Expecting numeric in V271 / R271C22: got '..'

## Warning: Expecting numeric in R272 / R272C18: got '..'

## Warning: Expecting numeric in S272 / R272C19: got '..'

## Warning: Expecting numeric in T272 / R272C20: got '..'

## Warning: Expecting numeric in U272 / R272C21: got '..'

## Warning: Expecting numeric in V272 / R272C22: got '..'

## Warning: Expecting numeric in R273 / R273C18: got '..'

## Warning: Expecting numeric in S273 / R273C19: got '..'

## Warning: Expecting numeric in T273 / R273C20: got '..'

## Warning: Expecting numeric in U273 / R273C21: got '..'

## Warning: Expecting numeric in V273 / R273C22: got '..'

## Warning: Expecting numeric in R274 / R274C18: got '..'

## Warning: Expecting numeric in S274 / R274C19: got '..'

## Warning: Expecting numeric in T274 / R274C20: got '..'

## Warning: Expecting numeric in U274 / R274C21: got '..'

## Warning: Expecting numeric in V274 / R274C22: got '..'

## Warning: Expecting numeric in R275 / R275C18: got '..'

## Warning: Expecting numeric in S275 / R275C19: got '..'

## Warning: Expecting numeric in T275 / R275C20: got '..'

## Warning: Expecting numeric in U275 / R275C21: got '..'

## Warning: Expecting numeric in V275 / R275C22: got '..'

## Warning: Expecting numeric in R276 / R276C18: got '..'

## Warning: Expecting numeric in S276 / R276C19: got '..'

## Warning: Expecting numeric in T276 / R276C20: got '..'

## Warning: Expecting numeric in U276 / R276C21: got '..'

## Warning: Expecting numeric in V276 / R276C22: got '..'

## Warning: Expecting numeric in R277 / R277C18: got '..'

## Warning: Expecting numeric in S277 / R277C19: got '..'

## Warning: Expecting numeric in T277 / R277C20: got '..'

## Warning: Expecting numeric in U277 / R277C21: got '..'

## Warning: Expecting numeric in V277 / R277C22: got '..'

## Warning: Expecting numeric in R278 / R278C18: got '..'

## Warning: Expecting numeric in S278 / R278C19: got '..'

## Warning: Expecting numeric in T278 / R278C20: got '..'

## Warning: Expecting numeric in U278 / R278C21: got '..'

## Warning: Expecting numeric in V278 / R278C22: got '..'

## Warning: Expecting numeric in R279 / R279C18: got '..'

## Warning: Expecting numeric in S279 / R279C19: got '..'

## Warning: Expecting numeric in T279 / R279C20: got '..'

## Warning: Expecting numeric in U279 / R279C21: got '..'

## Warning: Expecting numeric in V279 / R279C22: got '..'

## Warning: Expecting numeric in R280 / R280C18: got '..'

## Warning: Expecting numeric in S280 / R280C19: got '..'

## Warning: Expecting numeric in T280 / R280C20: got '..'

## Warning: Expecting numeric in U280 / R280C21: got '..'

## Warning: Expecting numeric in V280 / R280C22: got '..'

## Warning: Expecting numeric in R281 / R281C18: got '..'

## Warning: Expecting numeric in S281 / R281C19: got '..'

## Warning: Expecting numeric in T281 / R281C20: got '..'

## Warning: Expecting numeric in U281 / R281C21: got '..'

## Warning: Expecting numeric in V281 / R281C22: got '..'

## New names:  
## • `` -> `...1`  
## • `` -> `...2`  
## • `` -> `...3`  
## • `` -> `...4`  
## • `` -> `...5`  
## • `1990` -> `1990...6`  
## • `1995` -> `1995...7`  
## • `2000` -> `2000...8`  
## • `2005` -> `2005...9`  
## • `2010` -> `2010...10`  
## • `2015` -> `2015...11`  
## • `1990` -> `1990...12`  
## • `1995` -> `1995...13`  
## • `2000` -> `2000...14`  
## • `2005` -> `2005...15`  
## • `2010` -> `2010...16`  
## • `2015` -> `2015...17`

### Part 2: Cleaning Data with dplyr

# rename the following columns within the UN\_migrant in the tibble   
UN\_migrant <- rename(UN\_migrant, "Country" = "...2")   
UN\_migrant <- rename(UN\_migrant, "Country\_code" = "...4")   
UN\_migrant <- rename(UN\_migrant, "Type" = "...5")   
UN\_migrant <- rename(UN\_migrant, "1990" = "1990...6")   
UN\_migrant <- rename(UN\_migrant, "1995" = "1995...7")   
UN\_migrant <- rename(UN\_migrant, "2000" = "2000...8")   
UN\_migrant <- rename(UN\_migrant, "2005" = "2005...9")   
UN\_migrant <- rename(UN\_migrant, "2010" = "2010...10")   
UN\_migrant <- rename(UN\_migrant, "2015" = "2015...11")   
  
# create a new tibble called Migration   
Migration <- select(UN\_migrant, Country, Country\_code, Type, "1990", "1995", "2000", "2005", "2010", "2015")

### Part 3: Creating tidy data using tidyr and changing data type of year

# use pivoting to create tidy data from the year columns & saving pivoted table to new tibble  
Migration2 <- Migration %>% # piping reduces redundant commands  
 pivot\_longer(c('1990','1995', '2000', '2005', '2010', '2015'),names\_to='year',values\_to='cases')   
 # TheData (in piping line) Columns2Change NewVariableName New\_Column  
  
Migration2$year <- as.integer(Migration2$year) # make the years column as integer  
  
head(Migration2, n=6) # view 1st 6 rows of table

## # A tibble: 6 × 5  
## Country Country\_code Type year cases  
## <chr> <dbl> <chr> <int> <dbl>  
## 1 WORLD 900 <NA> 1990 18836571  
## 2 WORLD 900 <NA> 1995 17853840  
## 3 WORLD 900 <NA> 2000 15827803  
## 4 WORLD 900 <NA> 2005 13276733  
## 5 WORLD 900 <NA> 2010 15370755  
## 6 WORLD 900 <NA> 2015 19577474

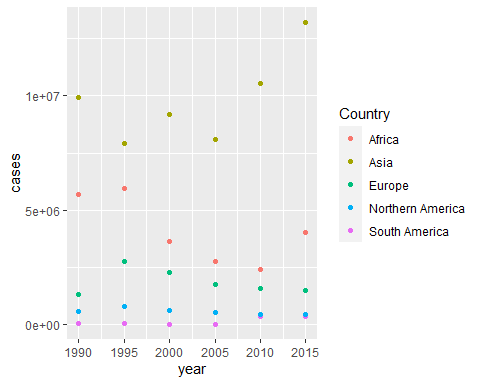
### Part4: Research Questions

RegionalMigration <- Migration2 %>% # piping reduces redundant commands  
 filter(Country=="Africa" | Country=="Asia" | Country=="Europe" | Country=="Northern America" | Country=="South America") # filter by country  
  
Americas <- Migration2 %>% # piping reduces redundant commands  
 filter(Country=="Central America" | Country=="South America" | Country=="Northern America") # filter by country

### Worldwide Migration based on Regions

1. Which region in the world had the highest number of migrants in the year 2005? ASIA
2. Over the years, which region consistently has the most migrants every 5 year span? Which has the second most? ASIA
3. What region has seen the fewest migrants over the years? SOUTH AMERICA
4. Which plot was most useful in answering these questions and why? LOOKING AT THE SCATTERPLOT WAS EASIER WHEN LOOKING AT A SPECIFIC YEAR. LOOKING AT TRENDS OVER TIME WAS EASIER ON THE BOX PLOT.

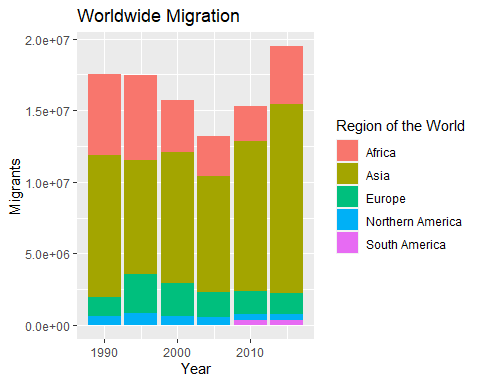
ggplot(RegionalMigration,mapping=aes(year,cases,color=Country)) +   
 # aes(x variable, y variable, color represents country)  
 geom\_point()



labs(title = "Worldwide Migration ", # Plot Title of Scatterplot  
 x = "Year", # x axis label  
 y = "Migrants" # y axis label  
 )

## $x  
## [1] "Year"  
##   
## $y  
## [1] "Migrants"  
##   
## $title  
## [1] "Worldwide Migration "  
##   
## attr(,"class")  
## [1] "labels"

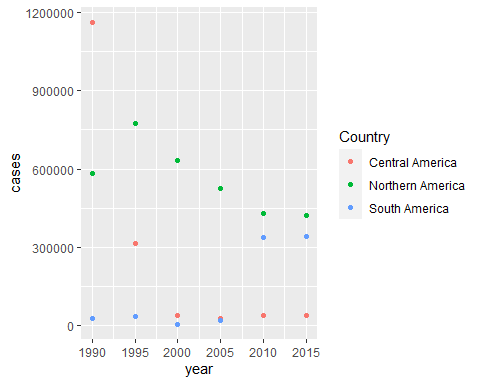
ggplot(RegionalMigration,mapping=aes(year,cases,fill=Country, )) +   
 # aes(x variable, y variable, color represents country, Legend Label)  
 geom\_col()+  
 scale\_fill\_discrete(name="Region of the World") +  
 labs(title = "Worldwide Migration ", # Plot Title of Boxplot  
 x = "Year", # x axis label  
 y = "Migrants" # y axis label  
 )



### Americas Migration by Region

1. In 1990, which region had the largest number of migrants for the Americas? CENTRAL AMERICA
2. Has this region continued to grow since 1990? NO
3. What trends do you notice happening in the Americas over the years? SOUTH AMERICANS ARE MIGRATING MORE IN THE CURRENT CENTURY WHILE NORTH AMERICANS ARE MOVING LESS.
4. Specifically, has Northern America increased or decreased over the years? DECREASED
5. Which plot was most useful in answering these questions and why? LOOKING AT THE SCATTERPLOT WAS EASIER WHEN LOOKING AT A SPECIFIC YEAR. LOOKING AT TRENDS OVER TIME WAS EASIER ON THE BOX PLOT.

ggplot(Americas,mapping=aes(year,cases,color=Country)) +   
 # aes(x variable, y variable, color represents country)  
 geom\_point()



labs(title = "Americas Migration ", # Plot Title of Scatterplot  
 x = "Year", # x axis label  
 y = "Migrants" # y axis label  
 )

## $x  
## [1] "Year"  
##   
## $y  
## [1] "Migrants"  
##   
## $title  
## [1] "Americas Migration "  
##   
## attr(,"class")  
## [1] "labels"

ggplot(Americas,mapping=aes(year,cases,fill=Country, )) +   
 # aes(x variable, y variable, color represents country, Legend Label)  
 geom\_col()+  
 scale\_fill\_discrete(name="Americas Region") +  
 labs(title = "Americas Migration ", # Plot Title of Boxplot  
 x = "Year", # x axis label  
 y = "Migrants" # y axis label  
 )

