Project 3 SQL and Analysis

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```r
library(stringr)
library(RMySQL)

## Loading required package: DBI

library(ggplot2)

MySQL_Username <- "root"
MySQL_Password <- "zukuzeb8"

JA_Data <- read.csv("https://raw.githubusercontent.com/juddanderman/cuny-data-607/master/Project3/linked
JA_Data <- cbind("LinkedIn", JA_Data[ , c(10,3,4,2,5,6)], NA)
JA_Data[ , 2] <- tolower(JA_Data[ , 2])
JA_Data[ , 2] <- iconv(JA_Data[ , 2], from = "latin1", to = "UTF-8")
JA_Data <- unique(JA_Data)
JA_Data$ID <- seq.int(nrow(JA_Data))
colnames(JA_Data) <- c("Source","Skill","Title","Location","Name","School","Degree","Company","Record_I
t(head(JA_Data, 1))
```

```
##          1
## Source   "LinkedIn"
## Skill    "talent management"
## Title    "Principal and Founder, Bersin by Deloitte"
## Location "Oakland, California"
## Name     "Josh Bersin"
## School   "University of California, Berkeley - Walter A. Haas School of Business"
## Degree   "MBA, 1988"
## Company  NA
## Record_ID "1"
```

```r
KC_Data <- read.csv("https://raw.githubusercontent.com/cunyauthor/Project3/master/API_Job.csv", encoding
KC_Data <- KC_Data[KC_Data[ , 1] != "count",] # Remove heading rows
KC_Data <- KC_Data[!is.na(KC_Data[ , 5]),] # Remove rows with blank skills
KC_Data <- cbind(Source = "KDnuggets+Dice", KC_Data[ , c(5,7,9)], NA, NA, NA, KC_Data[ , 8])
KC_Data[ , 2]  <- as.character(str_extract_all(KC_Data[ , 2] , "l\\=\\S+\\&c"))
KC_Data[ , 2]  <- str_replace_all(KC_Data[ , 2] , "(l\\=|\\&c)", "")
KC_Data[ , 2]  <- str_replace_all(KC_Data[ , 2] , "\\+", " ")
KC_Data$ID <- seq.int(nrow(KC_Data))
colnames(KC_Data) <- c("Source","Skill","Title","Location","Name","School","Degree","Company","Record_I
t(head(KC_Data, 1))
```

```
##          1
## Source   "KDnuggets+Dice"
## Skill    "Owning Up To The Title"
## Title    "Sr Sitecore Web Developer"
## Location "Milford"
## Name     NA
## School   NA
## Degree   NA
```

```
## Company    "UROOJ Corporation"
## Record_ID "1"
```

```r
Dice_Freq <- read.csv("https://raw.githubusercontent.com/juddanderman/cuny-data-607/master/Project3/dic
Dice_Freq[ , 1] <- iconv(Dice_Freq[ , 1], from = "latin1", to = "UTF-8")
colnames(Dice_Freq) <- c("Skill","Count","Frequency")
t(head(Dice_Freq, 1))
```

```
##            1
## Skill     "agile project management"
## Count     "24647"
## Frequency "0.3071162"
```

```r
Skill_class <- read.csv("https://raw.githubusercontent.com/scottogden10/607-Assignment2/master/skill_di
Skill_class[ , 2] <- iconv(Skill_class[ , 2], from = "latin1", to = "UTF-8")
colnames(Skill_class) <- c("Skill","Family","Category")
t(head(Skill_class, 1))
```

```
##            1
## Skill     "access"
## Family    "t"
## Category NA
```

```r
connection <- dbConnect(MySQL(), user=MySQL_Username, password=MySQL_Password)

dbSendQuery(connection, 'CREATE SCHEMA IF NOT EXISTS Skills;')
```

```
## <MySQLResult:1130323758,0,0>
```

```r
dbSendQuery(connection, 'USE Skills;')
```

```
## <MySQLResult:-1197952072,0,1>
```

```r
dbSendQuery(connection, 'DROP TABLE IF EXISTS tbl_LinkedIn;')
```

```
## <MySQLResult:-1199276952,0,2>
```

```r
dbSendQuery(connection, 'DROP TABLE IF EXISTS tbl_KDnuggets_Dice;')
```

```
## <MySQLResult:-1197952120,0,3>
```

```r
dbSendQuery(connection, 'DROP TABLE IF EXISTS tbl_Skill_Freq;')
```

```
## <MySQLResult:2036429415,0,4>
```

```r
dbSendQuery(connection, 'DROP TABLE IF EXISTS tbl_Skill_Class;')
```

```
## <MySQLResult:-1198066680,0,5>
```

```r
dbWriteTable(connection, "tbl_LinkedIn", JA_Data, append = TRUE, row.names = FALSE)
```

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

```r
dbSendQuery(connection, "ALTER TABLE tbl_LinkedIn
              MODIFY COLUMN Record_id MEDIUMINT NOT NULL,
              MODIFY COLUMN Source VARCHAR(25) NOT NULL,
              MODIFY COLUMN Skill VARCHAR(50) NOT NULL,
              MODIFY COLUMN Title VARCHAR(250) NULL,
              MODIFY COLUMN Location VARCHAR(50) NULL,
              MODIFY COLUMN Name VARCHAR(50) NULL,
              MODIFY COLUMN School VARCHAR(75) NULL,
```

```
            MODIFY COLUMN Degree VARCHAR(100) NULL,
            MODIFY COLUMN Company VARCHAR(50) NULL,
            ADD PRIMARY KEY (Record_id);")
```

<MySQLResult:-1199450632,0,9>

```
dbWriteTable(connection, "tbl_KDnuggets_Dice", KC_Data, append = TRUE, row.names = FALSE)
```

[1] TRUE

```
dbSendQuery(connection, "ALTER TABLE tbl_KDnuggets_Dice
            MODIFY COLUMN Record_id MEDIUMINT NOT NULL,
            MODIFY COLUMN Source VARCHAR(25) NOT NULL,
            MODIFY COLUMN Skill VARCHAR(50) NOT NULL,
            MODIFY COLUMN Title VARCHAR(250) NULL,
            MODIFY COLUMN Location VARCHAR(50) NULL,
            MODIFY COLUMN Name VARCHAR(50) NULL,
            MODIFY COLUMN School VARCHAR(75) NULL,
            MODIFY COLUMN Degree VARCHAR(100) NULL,
            MODIFY COLUMN Company VARCHAR(50) NULL,
            ADD PRIMARY KEY (Record_id);")
```

<MySQLResult:1,0,13>

```
dbWriteTable(connection, "tbl_Skill_Freq", Dice_Freq, append = TRUE, row.names = FALSE)
```

[1] TRUE

```
dbSendQuery(connection, "ALTER TABLE tbl_Skill_Freq
            MODIFY COLUMN Skill VARCHAR(50) NOT NULL,
            MODIFY COLUMN Count INT NOT NULL,
            MODIFY COLUMN Frequency DOUBLE NOT NULL,
            ADD PRIMARY KEY (Skill);")
```

<MySQLResult:-1199244000,0,17>

```
dbWriteTable(connection, "tbl_Skill_Class", Skill_class, append = TRUE, row.names = FALSE)
```

[1] TRUE

```
dbSendQuery(connection, "ALTER TABLE tbl_Skill_Class
            MODIFY COLUMN Skill VARCHAR(50) NOT NULL,
            MODIFY COLUMN Family varchar(50) NULL,
            MODIFY COLUMN Category varchar(50) NULL,
            ADD PRIMARY KEY (Skill);")
```

<MySQLResult:1,0,21>

```
SC<-dbGetQuery(connection,'select * from tbl_Skill_class')

All_Data <- dbGetQuery(connection, "SELECT Source, A.Skill, Title, Location, Name, School, Company, Reco
                               FROM
                          (SELECT * FROM tbl_linkedin UNION
                           SELECT * FROM tbl_KDnuggets_Dice) AS A
                           LEFT JOIN tbl_Skill_Freq AS B
                           ON A.Skill = B.Skill
                            Left join tbl_skill_class C
                          ON A.Skill=C.Skill
                           ORDER BY A.Source, A.Skill, A.Title")
```

```
##Geography
geo<-dbGetQuery(connection,"SELECT Location,count(Location) as Count
                    FROM tbl_KDnuggets_Dice group by Location
                        having count(location)>0 order by count(location) desc")

head(geo,15)
```

```
##          Location Count
## 1       New York    428
## 2   San Francisco    188
## 3        Atlanta    170
## 4      Charlotte    152
## 5     Jersey City    144
## 6        Seattle    135
## 7         Boston    117
## 8      San Diego    113
## 9         Austin    106
## 10     Washington    105
## 11    Los Angeles     99
## 12        Dallas     93
## 13       Chicago     91
## 14        Reston     84
## 15      Sunnyvale     80
```

```
geo1<-head(geo,15)
ggplot(geo1, aes(x=reorder(geo1$Location,-geo1$Count),y=geo1$Count))+geom_bar(stat="identity",fill="pin
```


Top 15 Most Common Locations on Dice
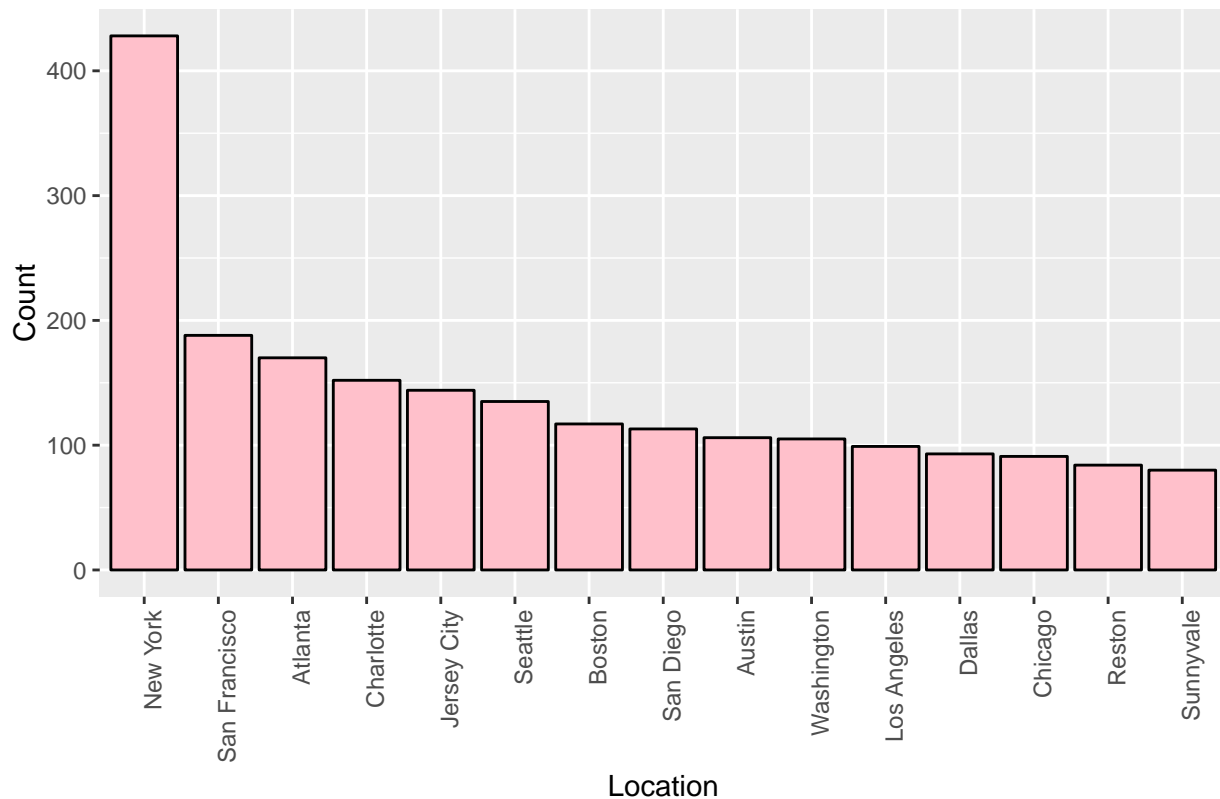
```
library(zipcode)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
data(zipcode)
y<-left_join(geo1 ,zipcode, by=c("Location" = "city"))
head(y)
```

```
##   Location Count    zip state latitude longitude
## 1 New York   428 10001    NY 40.75074 -73.99653
## 2 New York   428 10002    NY 40.71704 -73.98700
## 3 New York   428 10003    NY 40.73251 -73.98935
## 4 New York   428 10004    NJ 40.69923 -74.04118
## 5 New York   428 10005    NY 40.70602 -74.00858
## 6 New York   428 10006    NY 40.70790 -74.01342
```

```
coords<-aggregate(y[, 2:6], list(y$Location), mean)
```

```
## Warning in mean.default(X[[i]], ...): argument is not numeric or logical:
## returning NA

## Warning in mean.default(X[[i]], ...): argument is not numeric or logical:
## returning NA

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## returning NA

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## returning NA

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## returning NA

## Warning in mean.default(X[[i]], ...): argument is not numeric or logical:
```

```
## returning NA

## Warning in mean.default(X[[i]], ...): argument is not numeric or logical:
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## returning NA

## Warning in mean.default(X[[i]], ...): argument is not numeric or logical:
## returning NA

## Warning in mean.default(X[[i]], ...): argument is not numeric or logical:
```

```
## returning NA

## Warning in mean.default(X[[i]], ...): argument is not numeric or logical:
## returning NA

## Warning in mean.default(X[[i]], ...): argument is not numeric or logical:
## returning NA
```

```r
head(coords)
```

```
##      Group.1 Count zip state latitude longitude
## 1    Atlanta   170  NA    NA 34.28355 -85.08409
## 2     Austin   106  NA    NA 30.99552 -97.49090
## 3     Boston   117  NA    NA 41.97371 -71.94011
## 4  Charlotte   152  NA    NA 35.45512 -81.29719
## 5    Chicago    91  NA    NA 41.85240 -87.67876
## 6     Dallas    93  NA    NA 33.31553 -96.22423
```

```r
library(ggmap)
usa_center <- as.numeric(geocode("United States"))
```

```
## Information from URL : http://maps.googleapis.com/maps/api/geocode/json?address=United%20States&sens
```

```r
USAMap <- ggmap(get_googlemap(center=usa_center, scale=2, zoom=4), extent="normal")
```

```
## Map from URL : http://maps.googleapis.com/maps/api/staticmap?center=37.09024,-95.712891&zoom=4&size=
```

```r
USAMap+geom_point(aes(x=longitude, y=latitude), data=coords, col="red", alpha=0.5, size=coords$Count*.05
scale_size_continuous(range=range(coords$Count))
```


7
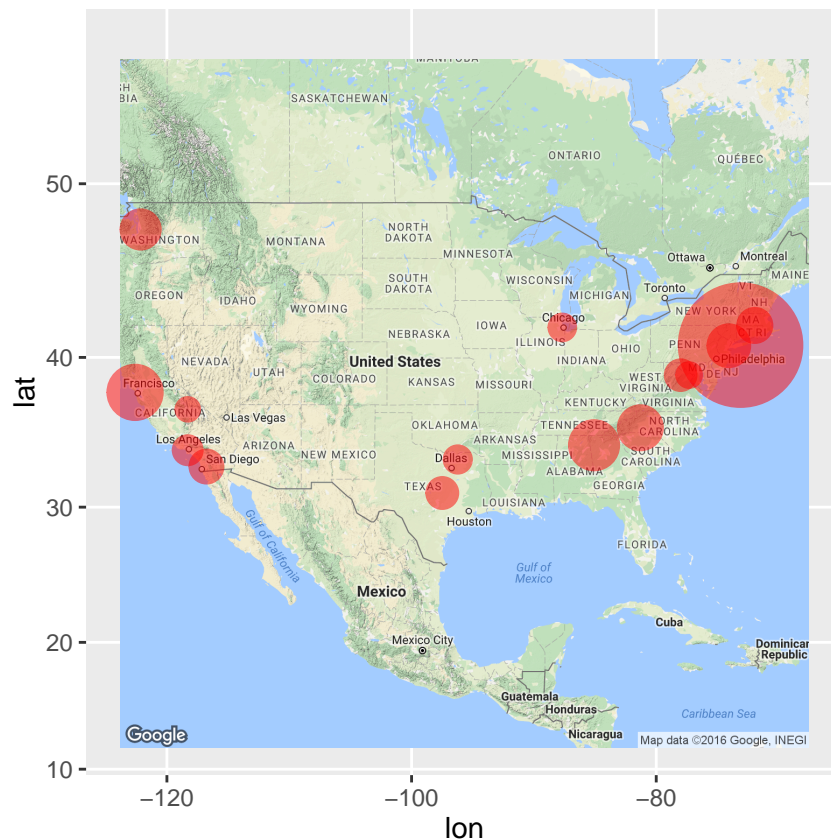
```
##Top Jobs on Dice with KD Nuggets Skills
KDAnalysis2<-dbGetQuery(connection, "Select Lower(Title) as Title, count(lower(title)) As Freq from
                        tbl_KDnuggets_Dice group by lower(title) having count(lower(title))>1(
            order by count(lower(title)) desc limit 20
            ")

ggplot(KDAnalysis2, aes(x=reorder(KDAnalysis2$Title,-KDAnalysis2$Freq),y=KDAnalysis2$Freq))+geom_bar(sta
```

Top Dice Jobs Associated with KD Skills
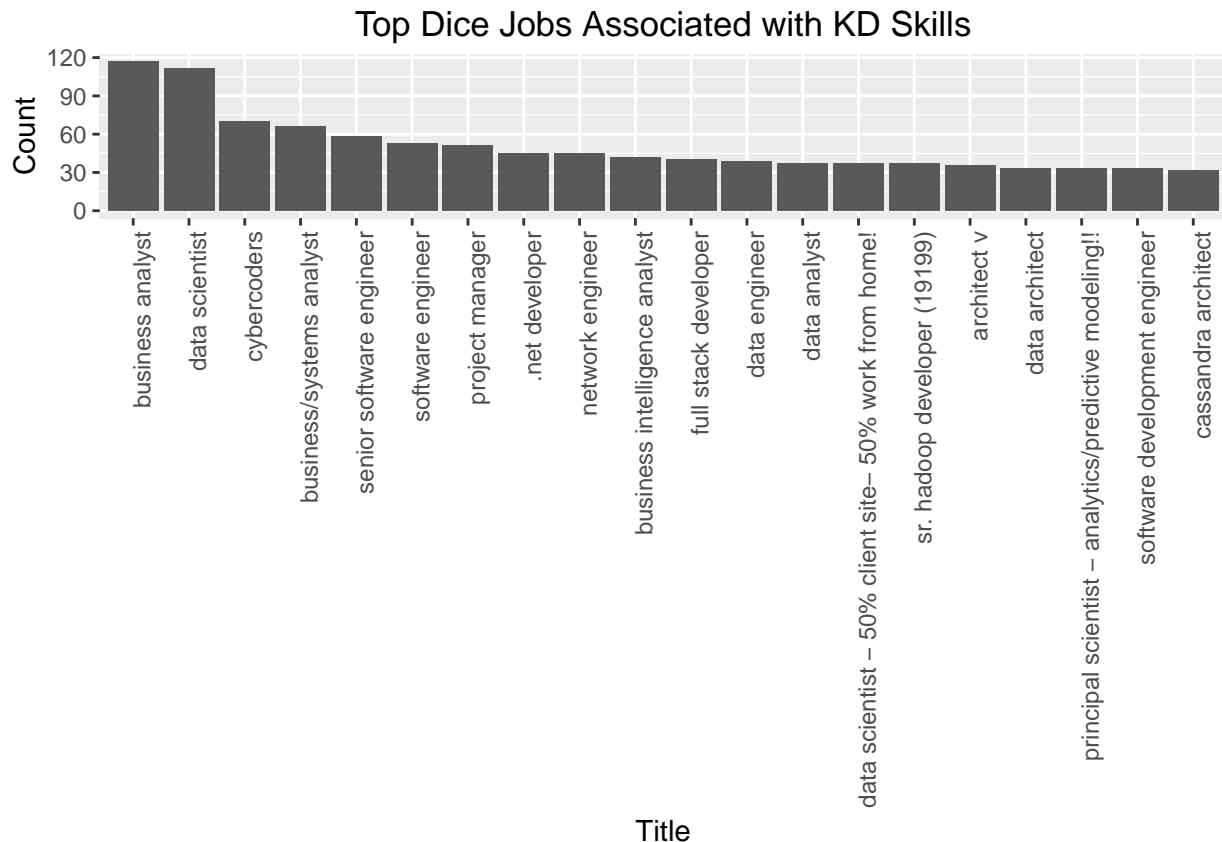

```
##All Jobs like Data Sci
KDAnalysis3<-dbGetQuery(connection, "Select Lower(Title) as Title, count(lower(title)) As Freq from
                        tbl_KDnuggets_Dice where Title like '%data sci%' group by lower(title)
            order by count(lower(title)) desc
            ")

head(KDAnalysis2,15)
```

```
##                                       Title Freq
## 1                            business analyst  117
## 2                              data scientist  112
## 3                                  cybercoders   70
## 4                     business/systems analyst   66
## 5                      senior software engineer   58
## 6                             software engineer   53
## 7                               project manager   51
## 8                                .net developer   45
## 9                              network engineer   45
```

```
## 10                        business intelligence analyst    42
## 11                                full stack developer      40
## 12                                       data engineer      39
## 13                                        data analyst      37
## 14                        sr. hadoop developer (19199)      37
## 15 data scientist - 50% client site- 50% work from home!    37
```
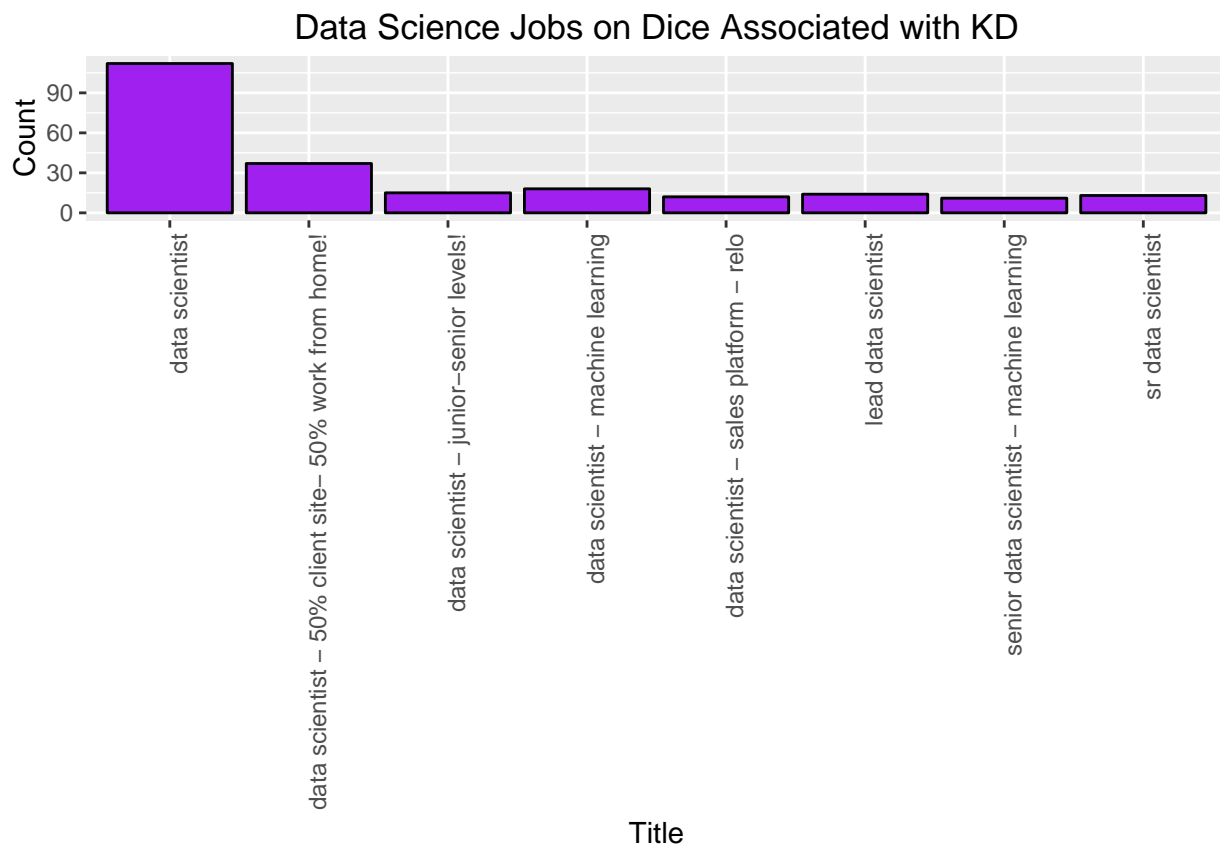
KDAnalysis3

```
##                                                   Title Freq
## 1                                          data scientist  112
## 2 data scientist - 50% client site- 50% work from home!   37
## 3                       data scientist - machine learning   18
## 4                 data scientist - junior-senior levels!   15
## 5                                     lead data scientist   14
## 6                                       sr data scientist   13
## 7               data scientist - sales platform - relo    12
## 8          senior data scientist - machine learning       11
```

```
ggplot(KDAnalysis3, aes(x=KDAnalysis3$Title,y=KDAnalysis3$Freq))+geom_bar(stat="identity",fill="purple"
```


Data Science Jobs on Dice Associated with KD

```
sum(KDAnalysis3$Freq)/9750*100
```

```
## [1] 2.379487
```
```
##2.3 percent of jobs are data science.  It is one of the largest categories.
```

```
LiAnalysis<-dbGetQuery(connection, "Select A.Skill,LiFreq, B.Count, Frequency as DiceFreq
```

```
                    from (Select Skill, count(Skill) as LiFreq from
                    tbl_linkedin group by Skill ) as A
                    left join tbl_Skill_Freq B on A.Skill=B.Skill
                    where LiFreq > 10 order by LiFreq desc limit 15
                    ")
head(LiAnalysis,15)
```

```
##                      Skill LiFreq Count      DiceFreq
## 1             data mining     26  5994 0.074688797
## 2               analytics     25   572 0.007127459
## 3                big data     24  6054 0.075436432
## 4        machine learning     23   326 0.004062153
## 5           data analysis     23 12727 0.158585972
## 6                  python     21  4526 0.056396646
## 7                       r     19   311 0.003875245
## 8              statistics     18    95 0.001183756
## 9              management     18 17762 0.221325059
## 10   business intelligence     16  5631 0.070165601
## 11     predictive analytics     14   599 0.007463895
## 12                     sql     14 12067 0.150361980
## 13              algorithms     14  1437 0.017905873
## 14 artificial intelligence     13  1207 0.015039936
## 15            data science     13  6350 0.079124768
```

```
ggplot(LiAnalysis, aes(x=reorder(LiAnalysis$Skill, -LiAnalysis$LiFreq),y=LiAnalysis$LiFreq))+geom_bar(s
```


Top Linked In Skills
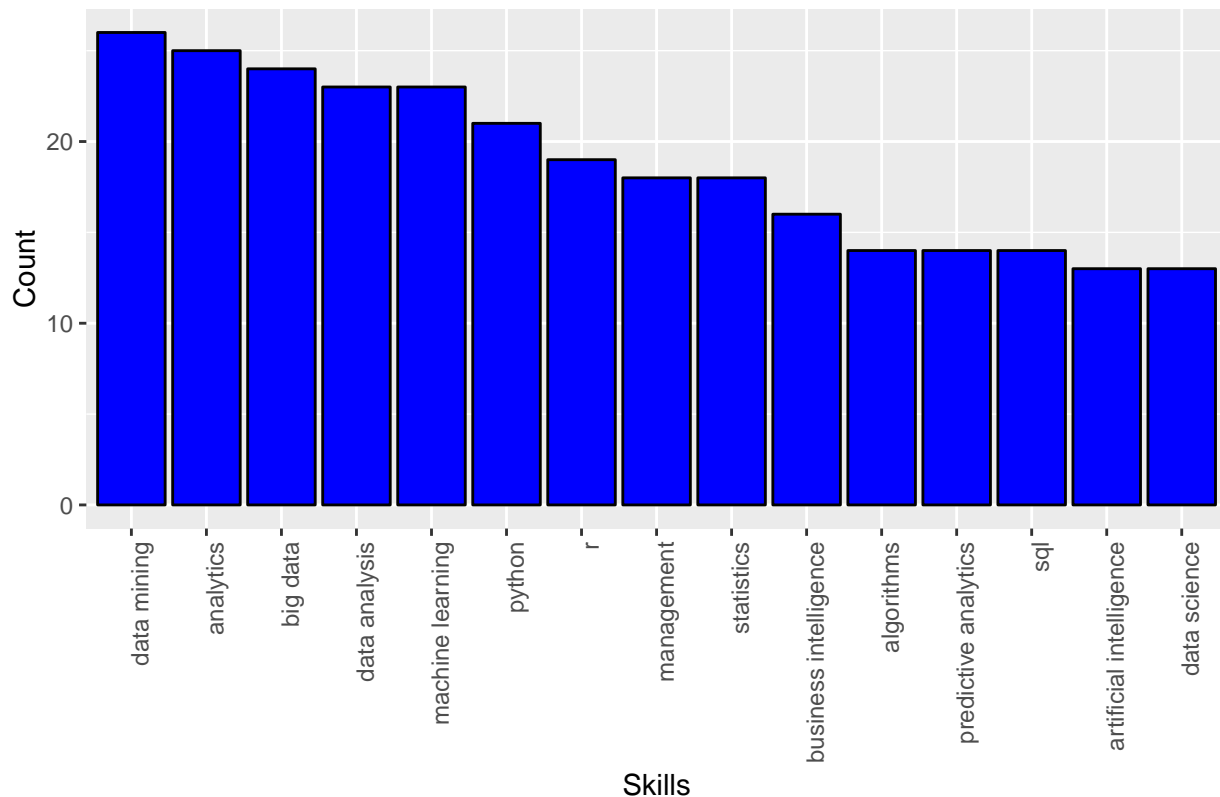
```
##Groups linked in skills by Family, Technical or not
LiAnalysis2<-dbGetQuery(connection, " select Family, COunt(skill) as Count from (Select A.Skill, B.Count
```

10

```
                          from
                          tbl_linkedin  as A
                          left join tbl_Skill_Freq B on A.Skill=B.Skill
                          left join tbl_skill_class C on A.Skill=C.Skill ) F where family is not null
                           Group by Family
                          ")
LiAnalysis2<-data.frame(LiAnalysis2,"TechFam"=c("Non-Tech","Technical"))
LiAnalysis2
```
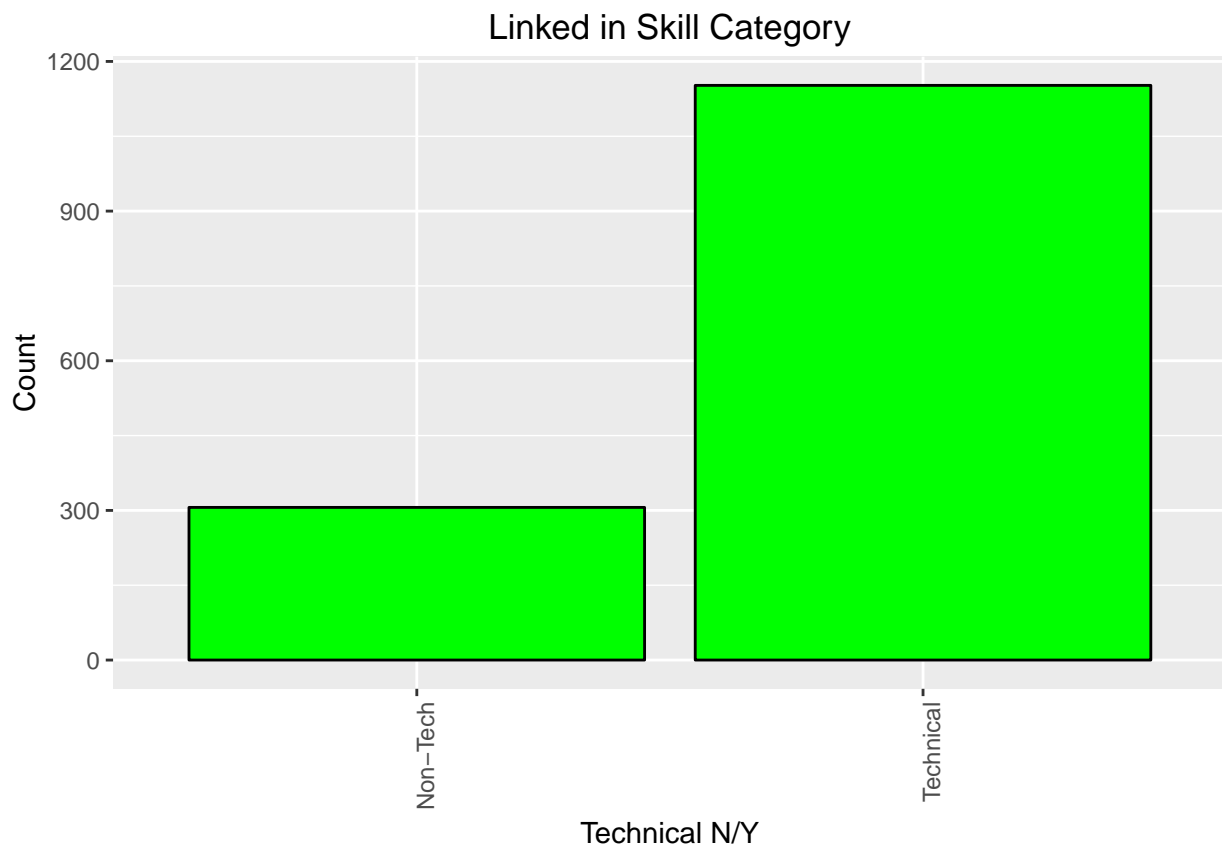
```
##    Family Count    TechFam
## 1      nt   306  Non-Tech
## 2       t  1152 Technical
```

```
ggplot(LiAnalysis2, aes(x=LiAnalysis2$TechFam,y=LiAnalysis2$Count))+geom_bar(stat="identity",fill="green
```


Linked in Skill Category

```
##Groups based on Soft skill type
LiAnalysis3<-dbGetQuery(connection, " select Category, COunt(skill) as Count from (Select A.Skill, B.Cou
                          from
                           tbl_linkedin  as A
                           left join tbl_Skill_Freq B on A.Skill=B.Skill
                           left join tbl_skill_class C on A.Skill=C.Skill ) F where Category is not null
                           Group by Category
                           ")

LiAnalysis3<-data.frame(LiAnalysis3,"Cat"=c("Communication","Human Resources","Management","Other ie Fr
LiAnalysis3
```

```
##    Category Count         Cat
```

```
## 1      co    19    Communication
## 2      hr    36 Human Resources
## 3      mn   192       Management
## 4      ot    48 Other ie French
## 5      ss    10       Soft Skill
```
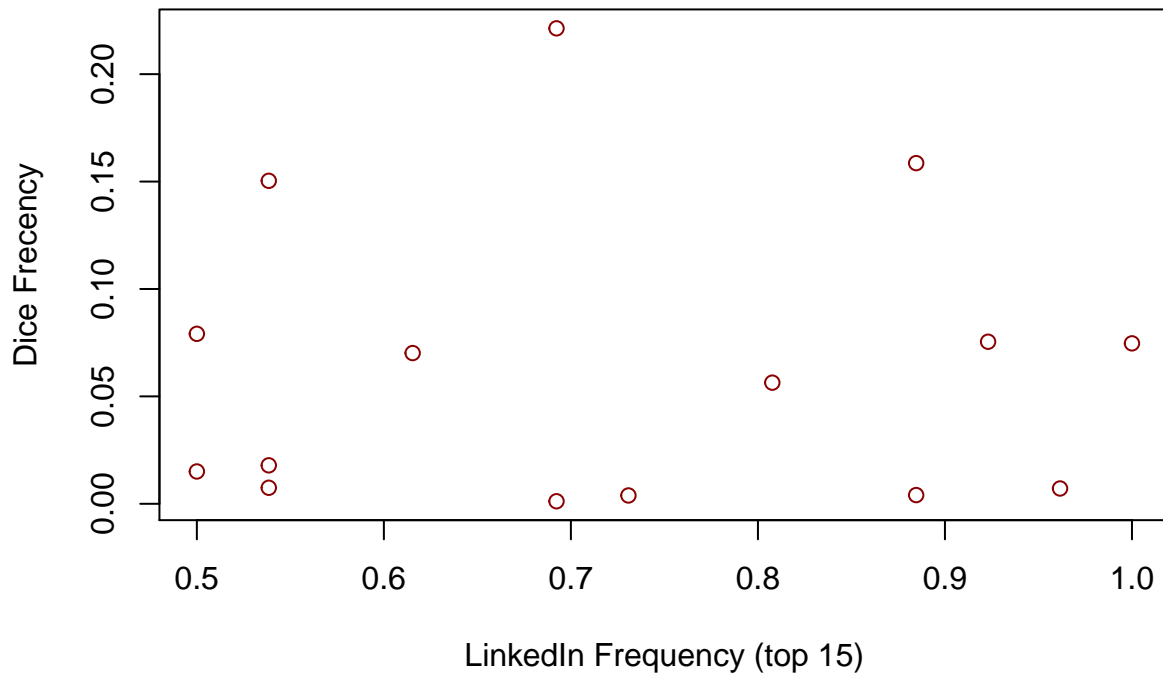
```
ggplot(LiAnalysis3, aes(x=reorder(LiAnalysis3$Cat,-LiAnalysis3$Count),y=LiAnalysis3$Count))+geom_bar(sta
```

Linked In Non Tech Skills
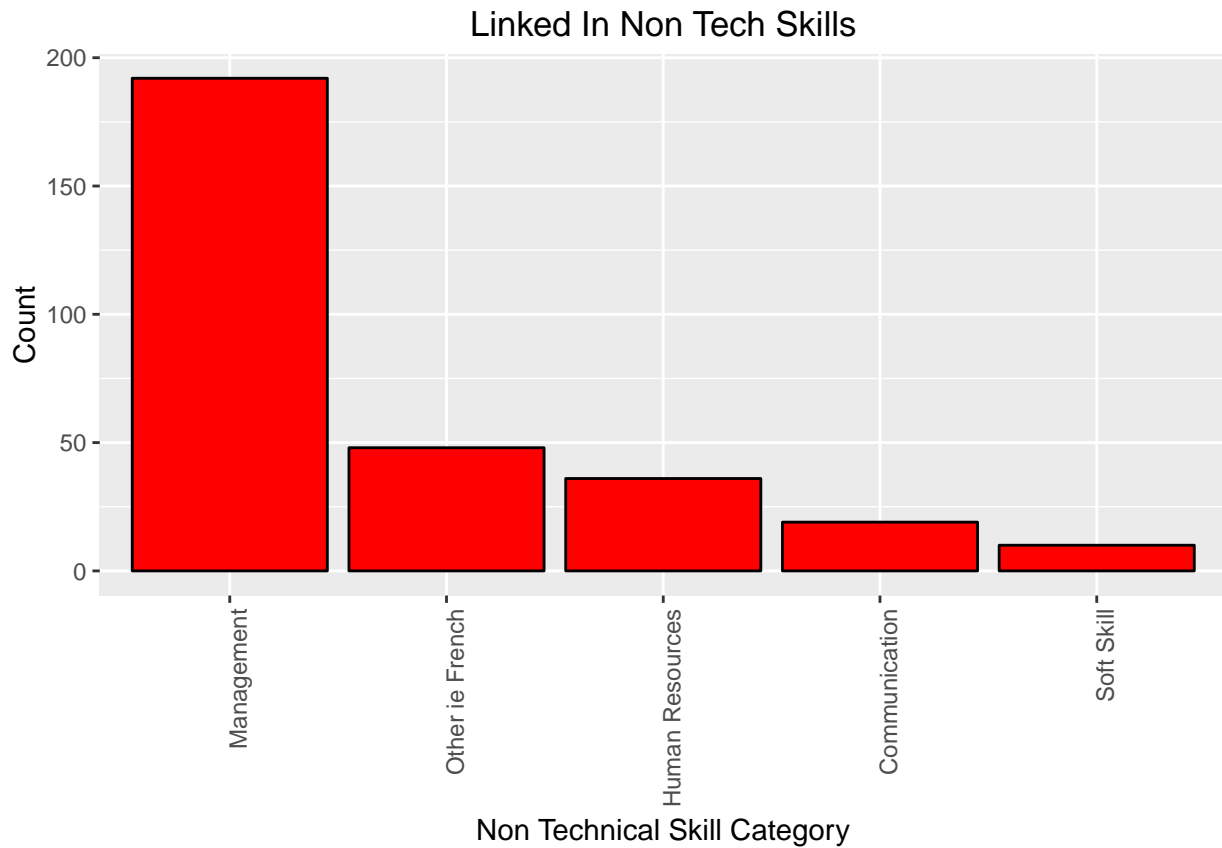

```
##Frequncy in the Top Data Scientists vs frequency in All Dice Jobs


plot(x=LiAnalysis$LiFreq/26,y=LiAnalysis$DiceFreq,xlab="LinkedIn Frequency (top 15)",ylab="Dice Frecency
```

Relationship of Linked in and Dice


```
cor.test(LiAnalysis$LiFreq,LiAnalysis$DiceFreq)
```

```
##
##  Pearson's product-moment correlation
##
## data:  LiAnalysis$LiFreq and LiAnalysis$DiceFreq
## t = 0.066354, df = 13, p-value = 0.9481
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.4985619  0.5257079
## sample estimates:
##        cor
## 0.01840028
```

```
##No Strong relationship between Dice Frequency and Frequency in top data scientists.
```

Word clouds

```
library(wordcloud)
```

```
## Loading required package: RColorBrewer
```

```
library(tm)
```

```
## Loading required package: NLP
```

```
##
## Attaching package: 'NLP'
```

```
## The following object is masked from 'package:ggplot2':
```

```
## 
##      annotate
```

##All skills

```
z<-left_join(JA_Data ,Skill_class, by="Skill")
JA_Datatec<-subset(z, Family=="t")
names<-(JA_Datatec$Skill)
tb<-table(names)
set.seed(1234)
wordcloud(names(tb), as.numeric(tb), min.freq = 1,
          max.words=150, random.order=FALSE, rot.per=0.35,
          colors=brewer.pal(8, "Dark2"))
```

```
## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : machine learning could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : business intelligence could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : predictive analytics could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : artificial intelligence could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : strategy could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : analysis could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : statistical modeling could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : enterprise software could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : start-ups could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : natural language processing could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : business analysis could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : business analytics could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : javascript could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
```

```
## = 150, : predictive modeling could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : computer science could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : data warehousing could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : mapreduce could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : mathematical modeling could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : social networking could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : software development could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : text mining could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : web analytics could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : data modeling could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : enterprise architecture could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : market research could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : microsoft sql server could not be fit on page. It will not be
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## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : pattern recognition could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : programming could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : distributed systems could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : integration could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : optimization could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : recommender systems could not be fit on page. It will not be
## plotted.
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## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : scalability could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : time series analysis could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : apache spark could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : architecture could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : big data analytics could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : customer analysis could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : data migration could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : deep learning could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : digital media could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : go-to-market strategy could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : high performance computing could not be fit on page. It will not be
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## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : microsoft office could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : online marketing could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : product development could not be fit on page. It will not be
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## 150, : project planning could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : social media marketing could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : social network analysis could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : software design could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : solution architecture could not be fit on page. It will not be
## plotted.
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## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : statistical data analysis could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : agile methodologies could not be fit on page. It will not be
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## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : anomaly detection could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : apache pig could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : applied mathematics could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : bayesian networks could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : bioinformatics could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : business objects could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : cluster analysis could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : competitive intelligence could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : customer relationship management (crm) could not be fit on page. It
## will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : customer service could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : data analytics could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : data integration could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : data management could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : data processing could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : data structures could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : e-commerce could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : econometrics could not be fit on page. It will not be plotted.
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## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : game theory could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : genetic algorithms could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : graph theory could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : knowledge discovery could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : logistic regression could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : marketing research could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : mathematica could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : microsoft excel could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : mobile applications could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : modeling could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : mongodb could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : neural networks could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : parallel computing could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : performance tuning could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : sas programming could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : semantic web could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : simulations could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : system architecture could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : technical writing could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : user experience could not be fit on page. It will not be plotted.
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## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : visionary could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : visual studio could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : web 2.0 could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : web development could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : web mining could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : web services could not be fit on page. It will not be plotted.
```

```r
##Technical
z<-left_join(JA_Data ,subset(Skill_class,Skill_class$Family=="t"), by="Skill")
JA_Datatec<-subset(z, Family=="t")
names<-(JA_Datatec$Skill)
tb<-table(names)
set.seed(1234)
wordcloud(names(tb), as.numeric(tb), min.freq = 1,
          max.words=150, random.order=FALSE, rot.per=0.35,
          colors=brewer.pal(8, "Dark2"))
```

```
## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : machine learning could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : business intelligence could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : predictive analytics could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : artificial intelligence could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : strategy could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : analysis could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : statistical modeling could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : enterprise software could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : start-ups could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : natural language processing could not be fit on page. It will not be
```

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## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : business analysis could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : business analytics could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : javascript could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : predictive modeling could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : computer science could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : data warehousing could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : mapreduce could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : mathematical modeling could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : social networking could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : software development could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : text mining could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : web analytics could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : data modeling could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : enterprise architecture could not be fit on page. It will not be
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## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : market research could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : microsoft sql server could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : pattern recognition could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : programming could not be fit on page. It will not be plotted.
```

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## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : distributed systems could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : integration could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : optimization could not be fit on page. It will not be plotted.

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## = 150, : recommender systems could not be fit on page. It will not be
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## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : scalability could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : time series analysis could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : apache spark could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : architecture could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : big data analytics could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : customer analysis could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : data migration could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : deep learning could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : digital media could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : go-to-market strategy could not be fit on page. It will not be
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## 150, : high performance computing could not be fit on page. It will not be
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## = 150, : product development could not be fit on page. It will not be
## plotted.

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## 150, : project planning could not be fit on page. It will not be plotted.
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## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : social media marketing could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : social network analysis could not be fit on page. It will not be
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## 150, : software design could not be fit on page. It will not be plotted.

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## 150, : bayesian networks could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : bioinformatics could not be fit on page. It will not be plotted.

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## 150, : customer relationship management (crm) could not be fit on page. It
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## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : data analytics could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : data integration could not be fit on page. It will not be plotted.
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## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : data management could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : data processing could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
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## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : econometrics could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : game theory could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : genetic algorithms could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : graph theory could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : knowledge discovery could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : logistic regression could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : marketing research could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : mathematica could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : microsoft excel could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : mobile applications could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : modeling could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : mongodb could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : neural networks could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : parallel computing could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : performance tuning could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : sas programming could not be fit on page. It will not be plotted.
```

```
## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : semantic web could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : simulations could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : system architecture could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : technical writing could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : user experience could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : visionary could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : visual studio could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : web 2.0 could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : web development could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : web mining could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : web services could not be fit on page. It will not be plotted.
```

```
##Not-Technical
z<-left_join(JA_Data ,subset(Skill_class,Skill_class$Family=="nt"), by="Skill")
JA_Datatec<-subset(z, Family=="nt")
names<-(JA_Datatec$Skill)
tb<-table(names)
set.seed(1234)
wordcloud(names(tb), as.numeric(tb), min.freq = 1,
          max.words=150, random.order=FALSE, rot.per=0.35,
          colors=brewer.pal(8, "Dark2"))
```

Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
150, : business strategy could not be fit on page. It will not be plotted.

Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
150, : program management could not be fit on page. It will not be plotted.

Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
= 150, : management consulting could not be fit on page. It will not be
plotted.

Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
150, : thought leadership could not be fit on page. It will not be plotted.

Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
150, : business process improvement could not be fit on page. It will not
be plotted.

Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
= 150, : executive management could not be fit on page. It will not be
plotted.

Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
150, : venture capital could not be fit on page. It will not be plotted.

Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
150, : business planning could not be fit on page. It will not be plotted.

Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
150, : cross-functional team leadership could not be fit on page. It will
not be plotted.

Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
= 150, : performance improvement could not be fit on page. It will not be
plotted.

Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
= 150, : performance management could not be fit on page. It will not be
plotted.

Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
150, : strategic thinking could not be fit on page. It will not be plotted.

Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
150, : team leadership could not be fit on page. It will not be plotted.

Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
150, : team management could not be fit on page. It will not be plotted.

Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
150, : agile project management could not be fit on page. It will not be
plotted.

```
## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : brand management could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : business process design could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : business requirements could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : career development could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : collaborative learning could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : community development could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : community engagement could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : community outreach could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : corporate communications could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : corporate finance could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : corporate university could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : cross-cultural communication skills could not be fit on page. It
## will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : customer satisfaction could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : decision analysis could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : decision management could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : employee engagement could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : enterprise collaboration could not be fit on page. It will not be
## plotted.
```

```
## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : enterprise it strategy could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : environmental awareness could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : event management could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : executive coaching could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : executive reporting could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : federal government could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : financial markets could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : global human resources management could not be fit on page. It will
## not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : higher education could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : hr transformation could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : imo (international mathematical olympiads) could not be fit on page.
## It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : inspiring leadership could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : integrated marketing could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : international policy could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : invention could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : it management could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : key performance indicators could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : leadership development could not be fit on page. It will not be
```

```
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : learning management could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : market analysis could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : market opportunity analysis could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : marketing management could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : mentoring could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : mergers & acquisitions could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : motivational speaking could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : new business development could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : organizational development could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : organizational effectiveness could not be fit on page. It will not
## be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : organizational learning could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : people management could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : portfolio management could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : positioning could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : pre-sales could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : presentations could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : proprietary trading could not be fit on page. It will not be
```

```
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : publishing could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : recruiting could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : risk management could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : sales management could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : science education could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : segmentation could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : strategic financial planning could not be fit on page. It will not
## be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : succession planning could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : talent management could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : target identification could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : teaching english as a foreign language could not be fit on page. It
## will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : teamentwicklung could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : teamwork could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : technical presentations could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : technical training could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : time management could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : trading strategies could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : value based selling could not be fit on page. It will not be
## plotted.
```

```
## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : vendor management could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : vulnerability assessment could not be fit on page. It will not be
## plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words =
## 150, : wealth management could not be fit on page. It will not be plotted.

## Warning in wordcloud(names(tb), as.numeric(tb), min.freq = 1, max.words
## = 150, : working with children could not be fit on page. It will not be
## plotted.
```



```r
dbSendQuery(connection, 'DROP TABLE tbl_LinkedIn;')
```

```
## <MySQLResult:-1190025792,0,30>
```

```r
dbSendQuery(connection, 'DROP TABLE tbl_KDnuggets_Dice;')
```

```
## <MySQLResult:-1190025792,0,31>
```

```r
dbSendQuery(connection, 'DROP TABLE tbl_Skill_Freq;')
```

```
## <MySQLResult:-1190025792,0,32>
```

```r
dbSendQuery(connection, 'DROP SCHEMA Skills;')
```

```
## <MySQLResult:-1190025792,0,33>
```

```r
connection <- dbConnect(MySQL(), user=MySQL_Username, password=MySQL_Password)
dbDisconnect(connection)
```

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