

MATH2349 Semester 2, 2018

Code ▾

Assignment 1

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Setup

The packages which i have installed and utilized are

* readr package : which is used to read data from rectangular data (like 'csv').

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```
library(readr)
```

Data Description

The dataset which I have choosen is a Comma Separated Values File.

The wellspring of that information is:

- <https://query.data.world/s/vhck6vfv7qiws3gdkwa5fyiwvyoffq>
(<https://query.data.world/s/vhck6vfv7qiws3gdkwa5fyiwvyoffq>).

This dataset has 497 distinct objects of 7 variables, which gives data about players who have been a piece of indian debut alliance till 2017. This data incorporate individual subtle elements like name, date of birth, nationality and abilities like batting, bowling hand.

Read/Import Data

In order to read and import the data from the dataset, i've used base R functions.

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```
player1 <- read.csv("player.csv")
head(player1)
```

PLAYER...	Player_Id	Player_Name	DOB	Batting_hand	Bowling_skill
<int>	<int>	<fctr>	<fctr>	<fctr>	<fctr>
1	0	1 SC Ganguly	7/8/1972	Left-hand bat	Right-arm mec
2	1	2 BB McCullum	9/27/1981	Right-hand bat	Right-arm mec
3	2	3 RT Ponting	12/19/1974	Right-hand bat	Right-arm mec

PLAYER...	Player_Id	Player_Name	DOB	Batting_hand	Bowling_skill
<int>	<int>	<fctr>	<fctr>	<fctr>	<fctr>
4	3	4 DJ Hussey	7/15/1977	Right-hand bat	Right-arm offbreak
5	4	5 Mohammad Hafeez	10/17/1980	Right-hand bat	Right-arm offbreak
6	5	6 R Dravid	1/11/1973	Right-hand bat	Right-arm offbreak
6 rows					
< >					

- As the dataset is in .csv format, read.csv() is used to import the data.
- the above command also stores the data into player1 object in R as a data frame.
- head() is utilized to demonstrate initial 6 objects of dataframe.

Inspect and Understand

Review of dataframe with factors should be possible in numerous ways, few of them include: * dim() is used to check the dimensions of the variables, in below r chunk we can see that the dataset player1 has 497 objects of 7 variables. * sapply(), is used on the entire datasets, Here i have passed typeof object which specifies the datatype of variables and levelsof object which is used to give information about levels in the dataset. * A factor named factor1 is created using factor class for the variable 'country_name', and its levels is checked. * The names of the factors is checked utilizing colnames().

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```
dim(player1)
```

```
[1] 497  7
```

Hide

```
sapply(player1, typeof)
```

```

PLAYER_SK      Player_Id  Player_Name      DOB  Batting_hand
"integer"      "integer"    "integer"      "integer"  "integer"
Bowling_skill  Country_Name
"integer"      "integer"
```

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```
sapply(player1, levels)
```

\$`PLAYER_SK`

NULL

\$Player_Id

NULL

\$Player_Name

[1]	"A Ashish Reddy"	"A Chandila"	"A Chopra"
[4]	"A Choudhary"	"A Flintoff"	"A Kumble"
[7]	"A Mishra"	"A Mithun"	"A Mukund"
[10]	"A Nehra"	"A Nel"	"A Singh"
[13]	"A Symonds"	"A Uniyal"	"A Zampa"
[16]	"AA Bilakhia"	"AA Chavan"	"AA Jhunjhunwala"
[19]	"AA Kazi"	"AA Noffke"	"AB Agarkar"
[22]	"AB Barath"	"AB de Villiers"	"AB Dinda"
[25]	"AB McDonald"	"Abdur Razzak"	"AC Blizzard"
[28]	"AC Gilchrist"	"AC Thomas"	"AC Voges"
[31]	"AD Mascarenhas"	"AD Mathews"	"AD Nath"
[34]	"AD Russell"	"AF Milne"	"AG Murtaza"
[37]	"AG Paunikar"	"AJ Finch"	"AJ Tye"
[40]	"AL Menaria"	"AM Nayar"	"AM Rahane"
[43]	"AM Salvi"	"AN Ahmed"	"AN Ghosh"
[46]	"Anand Rajan"	"Anirudh Singh"	"Ankit Sharma"
[49]	"Ankit Soni"	"Anureet Singh"	"AP Dole"
[52]	"AP Majumdar"	"AP Tare"	"AR Bawne"
[55]	"AR Patel"	"AS Rajpoot"	"AS Raut"
[58]	"AT Rayudu"	"AUK Pathan"	"Avesh Khan"
[61]	"Azhar Mahmood"	"B Akhil"	"B Chiqli"
[64]	"B Geeves"	"B Kumar"	"B Laughlin"
[67]	"B Lee"	"B Stanlake"	"B Sumanth"
[70]	"BA Bhatt"	"BA Stokes"	"Basil Thampi"
[73]	"BAW Mendis"	"BB McCullum"	"BB Samantray"
[76]	"BB Sran"	"BCJ Cutting"	"BE Hendricks"
[79]	"Bipul Sharma"	"BJ Haddin"	"BJ Hodge"
[82]	"BJ Rohrer"	"BMAJ Mendis"	"BR Dunk"
[85]	"BW Hilfenhaus"	"C de Grandhomme"	"C Ganapathy"
[88]	"C Madan"	"C Munro"	"C Nanda"
[91]	"CA Ingram"	"CA Lynn"	"CA Pujara"
[94]	"CH Gayle"	"CH Morris"	"CJ Anderson"
[97]	"CJ Ferguson"	"CJ Jordan"	"CJ McKay"
[100]	"CK Kapugedera"	"CK Langeveldt"	"CL White"
[103]	"CM Gautam"	"CR Brathwaite"	"CR Woakes"
[106]	"CRD Fernando"	"D du Preez"	"D Kalyankrishna"
[109]	"D Salunkhe"	"D Wiese"	"DA Miller"
[112]	"DA Warner"	"DAJ Bracewell"	"DB Das"
[115]	"DB Ravi Teja"	"DE Bollinger"	"DH Yagnik"
[118]	"DJ Bravo"	"DJ Harris"	"DJ Hooda"
[121]	"DJ Hussey"	"DJ Jacobs"	"DJ Muthuswami"

[124]	"DJ Thornely"	"DJG Sammy"	"DL Chahar"
[127]	"DL Vettori"	"DM Bravo"	"DNT Zoysa"
[130]	"DP Nannes"	"DP Vijaykumar"	"DPMD Jayawardene"
[133]	"DR Martyn"	"DR Smith"	"DS Kulkarni"
[136]	"DS Lehmann"	"DT Christian"	"DT Patil"
[139]	"DW Steyn"	"EJG Morgan"	"ER Dwivedi"
[142]	"F Behardien"	"F du Plessis"	"FH Edwards"
[145]	"FY Fazal"	"G Gambhir"	"Gagandeep Singh"
[148]	"GB Hogg"	"GC Smith"	"GD McGrath"
[151]	"GH Vihari"	"GJ Bailey"	"GJ Maxwell"
[154]	"GR Napier"	"GS Sandhu"	"Gurkeerat Singh"
[157]	"H Das"	"Harbhajan Singh"	"Harmeet Singh"
[160]	"Harpreet Singh"	"HH Gibbs"	"HH Pandya"
[163]	"HM Amla"	"HV Patel"	"I Malhotra"
[166]	"I Sharma"	"IC Pandey"	"IK Pathan"
[169]	"Imran Tahir"	"Iqbal Abdulla"	"IR Jaggi"
[172]	"Ishan Kishan"	"J Arunkumar"	"J Botha"
[175]	"J Suchith"	"J Syed Mohammad"	"J Theron"
[178]	"J Yadav"	"JA Morkel"	"Jaskaran Singh"
[181]	"JC Buttler"	"JD Ryder"	"JD Unadkat"
[184]	"JDP Oram"	"JDS Neesham"	"JE Taylor"
[187]	"JEC Franklin"	"JH Kallis"	"JJ Bumrah"
[190]	"JJ Roy"	"JJ van der Wath"	"JM Kemp"
[193]	"JO Holder"	"Joginder Sharma"	"JP Duminy"
[196]	"JP Faulkner"	"JR Hopes"	"JW Hastings"
[199]	"K Goel"	"K Rabada"	"K Santokie"
[202]	"K Upadhyay"	"KA Pollard"	"KAJ Roach"
[205]	"Kamran Akmal"	"Kamran Khan"	"Karanveer Singh"
[208]	"KB Arun Karthik"	"KC Cariappa"	"KC Sangakkara"
[211]	"KD Karthik"	"KH Devdhar"	"KH Pandya"
[214]	"KJ Abbott"	"KK Cooper"	"KK Nair"
[217]	"KL Rahul"	"KM Jadhav"	"KMDN Kulasekara"
[220]	"KP Appanna"	"KP Pietersen"	"KS Williamson"
[223]	"Kuldeep Yadav"	"KV Sharma"	"KW Richardson"
[226]	"L Amlish"	"L Balaji"	"L Ronchi"
[229]	"LA Carseldine"	"LA Pomersbach"	"LH Ferguson"
[232]	"LJ Wright"	"LMP Simmons"	"LPC Silva"
[235]	"LR Shukla"	"LRPL Taylor"	"M Ashwin"
[238]	"M de Lange"	"M Kaif"	"M Kartik"
[241]	"M Klinger"	"M Manhas"	"M Morkel"
[244]	"M Muralitharan"	"M Ntini"	"M Rawat"
[247]	"M Vijay"	"M Vohra"	"MA Agarwal"
[250]	"MA Khote"	"MA Starc"	"Mandeep Singh"
[253]	"Mashrafe Mortaza"	"MB Parmar"	"MC Henriques"
[256]	"MC Juneja"	"MD Mishra"	"MDKJ Perera"
[259]	"MEK Hussey"	"MF Maharoof"	"MG Johnson"
[262]	"MG Naser"	"Misbah-ul-Haq"	"MJ Clarke"
[265]	"MJ Guptill"	"MJ Henry"	"MJ Lumb"
[268]	"MJ McClenaghan"	"MK Pandey"	"MK Tiwary"

[271]	"ML Hayden"	"MM Patel"	"MM Sharma"
[274]	"MN Samuels"	"MN van Wyk"	"Mohammad Ashraful"
[277]	"Mohammad Asif"	"Mohammad Hafeez"	"Mohammad Nabi"
[280]	"Mohammed Shami"	"Mohammed Siraj"	"MP Stoinis"
[283]	"MR Marsh"	"MS Bisla"	"MS Dhoni"
[286]	"MS Gony"	"MS Wade"	"Mustafizur Rahman"
[289]	"MV Boucher"	"N Rana"	"N Saini"
[292]	"NB Singh"	"ND Doshi"	"NJ Maddinson"
[295]	"NJ Rimmington"	"NK Patel"	"NL McCullum"
[298]	"NLTC Perera"	"NM Coulter-Nile"	"NS Naik"
[301]	"NV Ojha"	"OA Shah"	"P Amarnath"
[304]	"P Awana"	"P Dharmani"	"P Dogra"
[307]	"P Kumar"	"P Negi"	"P Parameswaran"
[310]	"P Prasanth"	"P Sahu"	"P Suyal"
[313]	"PA Patel"	"PA Reddy"	"Pankaj Singh"
[316]	"Parvez Rasool"	"PC Valthaty"	"PD Collingwood"
[319]	"PJ Cummins"	"PJ Sangwan"	"PM Sarvesh Kumar"
[322]	"PP Chawla"	"PP Ojha"	"PR Shah"
[325]	"PSP Handscomb"	"PV Tambe"	"Q de Kock"
[328]	"R Ashwin"	"R Bhatia"	"R Bishnoi"
[331]	"R Dhawan"	"R Dravid"	"R McLaren"
[334]	"R Ninan"	"R Rampaul"	"R Sathish"
[337]	"R Sharma"	"R Shukla"	"R Tewatia"
[340]	"R Vinay Kumar"	"RA Jadeja"	"RA Shaikh"
[343]	"RA Tripathi"	"Rashid Khan"	"RD Chahar"
[346]	"RE Levi"	"RE van der Merwe"	"RG More"
[349]	"RG Sharma"	"RJ Harris"	"RJ Peterson"
[352]	"RJ Quiney"	"RN ten Doeschate"	"RP Singh"
[355]	"RR Bhatkal"	"RR Bose"	"RR Pant"
[358]	"RR Powar"	"RR Raje"	"RR Rossouw"
[361]	"RR Sarwan"	"RS Bopara"	"RS Gavaskar"
[364]	"RS Sodhi"	"RT Ponting"	"RV Gomez"
[367]	"RV Pawar"	"RV Uthappa"	"RW Price"
[370]	"S Anirudha"	"S Aravind"	"S Badree"
[373]	"S Badrinath"	"S Chanderpaul"	"S Dhawan"
[376]	"S Gopal"	"S Kaul"	"S Kaushik"
[379]	"S Ladda"	"S Nadeem"	"S Narwal"
[382]	"S Rana"	"S Randiv"	"S Sohal"
[385]	"S Sreesanth"	"S Sriram"	"S Tyagi"
[388]	"S Vidyut"	"SA Abbott"	"SA Asnodkar"
[391]	"SA Yadav"	"Sachin Baby"	"Salman Butt"
[394]	"Sandeep Sharma"	"SB Bangar"	"SB Jakati"
[397]	"SB Joshi"	"SB Styris"	"SB Wagh"
[400]	"SC Ganguly"	"SD Chitnis"	"SE Bond"
[403]	"SE Marsh"	"Shahid Afridi"	"Shakib Al Hasan"
[406]	"Shivam Sharma"	"Shoaib Ahmed"	"Shoaib Akhtar"
[409]	"Shoaib Malik"	"SJ Srivastava"	"SK Raina"
[412]	"SK Trivedi"	"SK Warne"	"SL Malinga"
[415]	"SM Boland"	"SM Harwood"	"SM Katich"

[418]	"SM Pollock"	"SMSM Senanayake"	"SN Khan"
[421]	"SN Thakur"	"Sohail Tanvir"	"SP Fleming"
[424]	"SP Goswami"	"SP Jackson"	"SP Narine"
[427]	"SPD Smith"	"SR Tendulkar"	"SR Watson"
[430]	"SS Agarwal"	"SS Iyer"	"SS Mundhe"
[433]	"SS Sarkar"	"SS Shaikh"	"SS Tiwary"
[436]	"ST Jayasuriya"	"STR Binny"	"Sunny Gupta"
[439]	"Sunny Singh"	"SV Samson"	"SW Billings"
[442]	"SW Tait"	"Swapnil Singh"	"T Henderson"
[445]	"T Kohli"	"T Mishra"	"T Natarajan"
[448]	"T Shamsi"	"T Taibu"	"T Thushara"
[451]	"TA Boulton"	"TD Paine"	"Tejas Baroka"
[454]	"TG Southee"	"TL Suman"	"TM Dilshan"
[457]	"TM Head"	"TM Srivastava"	"TP Sudhindra"
[460]	"TR Birt"	"TS Mills"	"U Kaul"
[463]	"UA Birla"	"UBT Chand"	"Umar Gul"
[466]	"UT Khawaja"	"UT Yadav"	"V Kohli"
[469]	"V Pratap Singh"	"V Sehwag"	"V Shankar"
[472]	"VH Zol"	"Vishnu Vinod"	"VR Aaron"
[475]	"VRV Singh"	"VS Malik"	"VS Yeligati"
[478]	"VVS Laxman"	"VY Mahesh"	"W Jaffer"
[481]	"WA Mota"	"Washington Sundar"	"WD Parnell"
[484]	"WP Saha"	"WPUJC Vaas"	"X Thalaivan Sargunam"
[487]	"Y Gnanaswara Rao"	"Y Nagar"	"Y Venugopal Rao"
[490]	"YA Abdulla"	"Yashpal Singh"	"YK Pathan"
[493]	"Younis Khan"	"YS Chahal"	"Yuvraj Singh"
[496]	"YV Takawale"	"Z Khan"	

\$DOB

[1]	"1/1/1985"	"1/1/1990"	"1/10/1978"	"1/11/1973"	"1/13/1982"
[6]	"1/14/1981"	"1/14/1988"	"1/15/1983"	"1/16/1994"	"1/17/1983"
[11]	"1/18/1975"	"1/18/1987"	"1/20/1994"	"1/22/1990"	"1/22/1991"
[16]	"1/25/1985"	"1/25/1988"	"1/26/1991"	"1/27/1974"	"1/27/1979"
[21]	"1/27/1983"	"1/27/1989"	"1/28/1990"	"1/30/1985"	"1/30/1987"
[26]	"1/30/1990"	"1/4/1984"	"1/6/1980"	"1/6/1990"	"1/6/1993"
[31]	"10/1/1978"	"10/11/1972"	"10/11/1979"	"10/11/1987"	"10/11/1993"
[36]	"10/12/1979"	"10/13/1990"	"10/13/1993"	"10/14/1976"	"10/14/1981"
[41]	"10/14/1988"	"10/15/1982"	"10/15/1984"	"10/15/1989"	"10/16/1975"
[46]	"10/16/1985"	"10/16/1991"	"10/17/1970"	"10/17/1980"	"10/18/1980"
[51]	"10/18/1991"	"10/19/1986"	"10/2/1977"	"10/2/1986"	"10/20/1978"
[56]	"10/20/1981"	"10/20/1986"	"10/20/1991"	"10/21/1971"	"10/22/1978"
[61]	"10/22/1979"	"10/23/1977"	"10/23/1983"	"10/23/1987"	"10/24/1978"
[66]	"10/24/1984"	"10/25/1985"	"10/25/1987"	"10/25/1989"	"10/27/1977"
[71]	"10/27/1984"	"10/27/1986"	"10/27/1988"	"10/27/1997"	"10/28/1985"
[76]	"10/28/1988"	"10/29/1971"	"10/29/1989"	"10/29/1990"	"10/3/1981"
[81]	"10/3/1982"	"10/30/1977"	"10/4/1979"	"10/4/1988"	"10/4/1997"
[86]	"10/5/1983"	"10/5/1999"	"10/6/1978"	"10/6/1984"	"10/7/1977"
[91]	"10/7/1978"	"10/7/1983"	"10/7/1984"	"10/8/1971"	"10/8/1983"
[96]	"10/8/1987"	"10/9/1983"	"10/9/1987"	"10/9/1988"	"10/9/1989"

[101]	"11/1/1974"	"11/10/1987"	"11/11/1982"	"11/11/1985"	"11/11/1994"
[106]	"11/12/1982"	"11/14/1971"	"11/14/1985"	"11/17/1975"	"11/17/1982"
[111]	"11/17/1986"	"11/17/1989"	"11/19/1984"	"11/19/1985"	"11/2/1981"
[116]	"11/20/1998"	"11/21/1981"	"11/21/1984"	"11/21/1993"	"11/23/1990"
[121]	"11/23/1994"	"11/24/1982"	"11/27/1980"	"11/27/1981"	"11/27/1986"
[126]	"11/29/1977"	"11/3/1987"	"11/4/1982"	"11/4/1985"	"11/4/1994"
[131]	"11/5/1984"	"11/5/1988"	"11/5/1990"	"11/5/1991"	"11/7/1980"
[136]	"11/7/1987"	"11/7/1989"	"11/8/1976"	"11/8/1981"	"11/8/1987"
[141]	"11/9/1994"	"12/1/1980"	"12/1/1982"	"12/10/1986"	"12/10/1988"
[146]	"12/10/1992"	"12/11/1988"	"12/12/1981"	"12/12/1984"	"12/12/1986"
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[161]	"12/17/1974"	"12/17/1988"	"12/17/1992"	"12/18/1986"	"12/18/1988"
[166]	"12/18/1991"	"12/19/1974"	"12/2/1987"	"12/2/1989"	"12/2/1993"
[171]	"12/20/1982"	"12/20/1983"	"12/20/1984"	"12/20/1988"	"12/21/1987"
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[191]	"12/4/1977"	"12/4/1993"	"12/5/1983"	"12/5/1985"	"12/6/1977"
[196]	"12/6/1984"	"12/6/1985"	"12/6/1988"	"12/6/1991"	"12/6/1993"
[201]	"12/6/1994"	"12/7/1983"	"12/8/1984"	"12/9/1981"	"2/1/1981"
[206]	"2/1/1982"	"2/1/1987"	"2/1/1996"	"2/11/1991"	"2/12/1980"
[211]	"2/12/1984"	"2/12/1991"	"2/13/1989"	"2/15/1986"	"2/16/1978"
[216]	"2/16/1989"	"2/16/1991"	"2/17/1984"	"2/18/1990"	"2/19/1990"
[221]	"2/2/1992"	"2/20/1976"	"2/20/1983"	"2/21/1976"	"2/22/1983"
[226]	"2/23/1974"	"2/24/1987"	"2/24/1991"	"2/26/1982"	"2/27/1979"
[231]	"2/28/1975"	"2/29/1992"	"2/5/1970"	"2/5/1981"	"2/5/1990"
[236]	"2/6/1971"	"2/6/1982"	"2/6/1983"	"2/6/1989"	"2/9/1970"
[241]	"2/9/1977"	"2/9/1983"	"2/9/1984"	"2/9/1985"	"3/1/1974"
[246]	"3/1/1980"	"3/1/1981"	"3/10/1991"	"3/11/1985"	"3/11/1987"
[251]	"3/13/1994"	"3/15/1983"	"3/2/1988"	"3/2/1989"	"3/2/1991"
[256]	"3/20/1979"	"3/24/1987"	"3/24/1991"	"3/25/1984"	"3/26/1981"
[261]	"3/26/1985"	"3/26/1993"	"3/27/1979"	"3/29/1979"	"3/29/1984"
[266]	"3/29/1990"	"3/3/1987"	"3/31/1983"	"3/31/1992"	"3/7/1985"
[271]	"3/8/1984"	"3/8/1986"	"3/9/1981"	"3/9/1985"	"4/1/1973"
[276]	"4/1/1984"	"4/10/1990"	"4/11/1989"	"4/12/1983"	"4/12/1988"
[281]	"4/13/1992"	"4/13/1994"	"4/14/1984"	"4/14/1987"	"4/14/1990"
[286]	"4/16/1982"	"4/17/1972"	"4/17/1987"	"4/18/1988"	"4/18/1992"
[291]	"4/19/1995"	"4/2/1981"	"4/20/1991"	"4/22/1980"	"4/23/1981"
[296]	"4/23/1985"	"4/24/1973"	"4/24/1984"	"4/26/1989"	"4/26/1991"
[301]	"4/29/1979"	"4/29/1988"	"4/29/1990"	"4/3/1989"	"4/30/1977"
[306]	"4/30/1984"	"4/30/1987"	"4/8/1984"	"5/10/1988"	"5/10/1993"
[311]	"5/12/1987"	"5/13/1978"	"5/13/1990"	"5/14/1983"	"5/15/1985"
[316]	"5/16/1976"	"5/18/1985"	"5/18/1989"	"5/18/1993"	"5/19/1990"
[321]	"5/2/1982"	"5/20/1978"	"5/20/1993"	"5/22/1985"	"5/23/1984"
[326]	"5/25/1995"	"5/26/1976"	"5/26/1988"	"5/27/1975"	"5/27/1977"
[331]	"5/27/1991"	"5/28/1974"	"5/3/1992"	"5/30/1985"	"5/31/1986"
[336]	"5/4/1983"	"5/4/1985"	"5/6/1981"	"5/6/1985"	"5/6/1987"
[341]	"5/8/1993"	"5/9/1983"	"6/1/1982"	"6/1/1985"	"6/10/1981"

[346]	"6/10/1989"	"6/11/1986"	"6/12/1976"	"6/12/1985"	"6/13/1982"
[351]	"6/13/1991"	"6/14/1993"	"6/15/1982"	"6/15/1991"	"6/17/1981"
[356]	"6/17/1984"	"6/18/1986"	"6/18/1987"	"6/2/1987"	"6/2/1989"
[361]	"6/21/1981"	"6/22/1983"	"6/22/1984"	"6/23/1980"	"6/27/1980"
[366]	"6/27/1983"	"6/27/1984"	"6/29/1990"	"6/3/1983"	"6/3/1984"
[371]	"6/30/1969"	"6/30/1980"	"6/30/1988"	"6/4/1991"	"6/5/1981"
[376]	"6/6/1970"	"6/6/1988"	"6/7/1975"	"6/8/1990"	"6/9/1975"
[381]	"7/10/1975"	"7/10/1986"	"7/12/1983"	"7/13/1984"	"7/15/1977"
[386]	"7/16/1973"	"7/18/1988"	"7/18/1993"	"7/18/1998"	"7/19/1979"
[391]	"7/19/1986"	"7/20/1983"	"7/21/1990"	"7/22/1982"	"7/22/1986"
[396]	"7/22/1988"	"7/22/1989"	"7/23/1990"	"7/24/1981"	"7/24/1985"
[401]	"7/28/1978"	"7/3/1980"	"7/3/1985"	"7/30/1989"	"7/4/1980"
[406]	"7/6/1977"	"7/7/1981"	"7/7/1984"	"7/8/1972"	"7/9/1983"
[411]	"8/1/1974"	"8/11/1991"	"8/12/1989"	"8/12/1992"	"8/13/1975"
[416]	"8/15/1989"	"8/16/1974"	"8/16/1989"	"8/17/1990"	"8/18/1983"
[421]	"8/2/1980"	"8/2/1993"	"8/20/1982"	"8/21/1975"	"8/21/1985"
[426]	"8/25/1984"	"8/28/1983"	"8/28/1990"	"8/30/1980"	"8/4/1979"
[431]	"8/4/1999"	"8/6/1984"	"8/7/1992"	"8/8/1990"	"9/1/1980"
[436]	"9/1/1985"	"9/10/1986"	"9/10/1989"	"9/11/1976"	"9/11/1993"
[441]	"9/12/1990"	"9/13/1969"	"9/14/1990"	"9/17/1984"	"9/17/1986"
[446]	"9/17/1987"	"9/17/1990"	"9/18/1984"	"9/18/1988"	"9/19/1977"
[451]	"9/2/1988"	"9/20/1981"	"9/21/1979"	"9/22/1981"	"9/22/1986"
[456]	"9/23/1985"	"9/27/1974"	"9/27/1981"	"9/27/1986"	"9/27/1988"
[461]	"9/28/1983"	"9/28/1984"	"9/28/1990"	"9/29/1989"	"9/3/1986"
[466]	"9/3/1990"	"9/30/1986"	"9/4/1982"	"9/4/1989"	"9/4/1993"
[471]	"9/5/1986"	"9/5/1987"	"9/6/1979"	"9/6/1995"	"9/7/1982"
[476]	"9/7/1984"	"9/7/1985"	"9/7/1992"	"9/7/1995"	"9/8/1990"
[481]	"9/8/1995"	"9/9/1993"			

\$Batting_hand

[1]	" Left-hand bat"	" Right-hand bat"	"Left-hand bat"	"Right-hand bat"
[5]	"Right-handed"			

\$Bowling_skill

[1]	" Left-arm fast"	" Legbreak"
[3]	" Right-arm fast-medium"	" Right-arm medium-fast"
[5]	" Right-arm offbreak"	"Left-arm fast"
[7]	"Left-arm fast-medium"	"Left-arm medium"
[9]	"Left-arm medium-fast"	"Legbreak"
[11]	"Legbreak googly"	"N/A"
[13]	"NULL"	"Right-arm bowler"
[15]	"Right-arm fast"	"Right-arm fast-medium"
[17]	"Right-arm medium"	"Right-arm medium-fast"
[19]	"Right-arm medium fast"	"Right-arm offbreak"
[21]	"Slow left-arm chinaman"	"Slow left-arm orthodox"

\$Country_Name

[1]	"Afghanistan"	"Australia"	"Bangladesh"	"England"
-----	---------------	-------------	--------------	-----------


```
[5] "India"          "Netherlands"   "New Zealand"   "Pakistan"
[9] "South Africa"  "Sri Lanka"     "West Indies"   "Zimbabwea"
```

Hide

```
factor1 <- as.factor(player1$Country_Name)
levels(factor1)
```

```
[1] "Afghanistan"  "Australia"     "Bangladesh"    "England"
[5] "India"        "Netherlands"   "New Zealand"   "Pakistan"
[9] "South Africa" "Sri Lanka"     "West Indies"   "Zimbabwea"
```

Hide

```
colnames(player1)
```

```
[1] "PLAYER_SK"      "Player_Id"      "Player_Name"    "DOB"
[5] "Batting_hand"   "Bowling_skill"  "Country_Name"
```

Subsetting I

- In this progression I have subsetting the dataframe player1 and given the name as playsub.
- As the data frame playsub is made, keeping in mind the end goal to secret that into lattice, I've utilized as.matrix() and given the name as playmat.
- structure of matrix is controlled by str() , We can see that the grid has 10 objects and 7 variables and the class of initial 2 factors is int and other 5 factors is struct.
- Also attribute function is used to check the attribute of the data structure, we can see from the output that a list of 2 vectors is created in which one list shows about the objects while the other shows about variables.

Hide

```
playsub <- player1[1:10,]
playmat <- as.matrix(playsub)
str(playmat)
```

```
chr [1:10, 1:7] "0" "1" "2" "3" "4" "5" "6" "7" "8" "9" " " "1" "2" ...
- attr(*, "dimnames")=List of 2
..$ : chr [1:10] "1" "2" "3" "4" ...
..$ : chr [1:7] "PLAYER_SK" "Player_Id" "Player_Name" "DOB" ...
```

Hide

```
attributes(playmat)
```

```
$`dim`  
[1] 10 7  
  
$dimnames  
$dimnames[[1]]  
[1] "1" "2" "3" "4" "5" "6" "7" "8" "9" "10"  
  
$dimnames[[2]]  
[1] "PLAYER_SK" "Player_Id" "Player_Name" "DOB"  
[5] "Batting_hand" "Bowling_skill" "Country_Name"
```

Subsetting II

- The first and last variable of a dataframe is subsetting by giving the index value of first and last variable to any object(here i've taken var1,varn) and the dataframe can be created by data.frame function.
- When str() is used to the new data frame, it can be watched that it has 2 variables with one variable being int datatype while the other variable is factor.
- save function is used to convert the data frame into .RData file.

Hide

```
var1= player1[1]  
varn= player1[7]  
firstlastsub <- data.frame(var1,varn)  
str(firstlastsub)
```

```
'data.frame': 497 obs. of 2 variables:  
 $ PLAYER_SK : int 0 1 2 3 4 5 6 7 8 9 ...  
 $ Country_Name: Factor w/ 12 levels "Afghanistan",...: 5 7 2 2 8 5 5 5 9 2 ...
```

Hide

```
save(firstlastsub,file = "new.RData")
```

Create a new Data Frame

- In this step, I've created a data frame of 2 variables and 4 observations, the data frame gives the information about population(in billions) for four countries(India,Pakistan,china,Egypt).
- Using str(), it can be seen that the name variable has factor datatype and number datatype for population.

- I've created a random numeric vector with 4 objects and cbind() is utilized to combine both the vectors into a single vector
- By using dim(), it can be seen that the resultant vector has 4 objects and 3 variables.
- Finally by attributes function, we can see the names of columns, class and row names.

Hide

```
countries_population <- data.frame(name =c("india","pakistan","china","egypt"),
                                   population_bill= c(1.9,1.3,2.1,0.95))
str(countries_population)
```

```
'data.frame':  4 obs. of  2 variables:
 $ name          : Factor w/ 4 levels "china","egypt",...: 3 4 1 2
 $ population_bill: num  1.9 1.3 2.1 0.95
```

Hide

```
levels(countries_population$name)
```

```
[1] "china"    "egypt"    "india"    "pakistan"
```

Hide

```
countries <- c(4, 75, 145,111)
population <-cbind(countries_population,countries)
str(population)
```

```
'data.frame':  4 obs. of  3 variables:
 $ name          : Factor w/ 4 levels "china","egypt",...: 3 4 1 2
 $ population_bill: num  1.9 1.3 2.1 0.95
 $ countries      : num  4 75 145 111
```

Hide

```
dim(population)
```

```
[1] 4 3
```

Hide

```
attributes(population)
```

```
$`names`  
[1] "name"          "population_bill" "countries"  
  
$class  
[1] "data.frame"  
  
$row.names  
[1] 1 2 3 4
```