Assigment_1 Fml

AJAY SHADAM

2023-09-24

#Download the Dataset called "telangana-post-monsoon-ground-water-quality-data" from the source (datasource:https://www.kaggle.com/datasets/sivapriyagarladinne/telangana-post-monsoon-ground-water-quality-data?resource=download)

```
#Below function reads the csv file which is donwloaded and loads it into a dataframe -"my_file".
my_file <-read.csv("C:/Users/Ajay Reddy/Downloads/ground_water_quality_2018_post.csv")
#prints out the full dataset.
my_file
```

```
##     sno          district             mandal              village  lat_gis
## 1     1          ADILABAD           Adilabad              Adilabad 19.66830
## 2     2          ADILABAD        Bazarhatnur           Bazarhatnur 19.45889
## 3     3          ADILABAD        Gudihatnoor           Gudihatnoor 19.52556
## 4     4          ADILABAD            Jainath               Jainath 19.73055
## 5     5          ADILABAD            Narnoor               Narnoor 19.49566
## 6     6          ADILABAD        Neradigonda           Neradigonda 19.29375
## 7     7          ADILABAD         Talamadugu            Talamadugu 19.63340
## 8     8          ADILABAD              Tamsi                 Tamsi 19.68110
## 9     9          ADILABAD             Utnoor                Utnoor 19.37890
## 10   10         BHADRADRI   Annapureddypalli      Annapureddypalli 17.35452
## 11   11         BHADRADRI         Ashwapuram             Aswapuram 17.84168
## 12   12         BHADRADRI       Bhadrachalam          Bhadrachalam 17.66678
## 13   13         BHADRADRI          Burgampad             M.Banjara 17.64470
## 14   14         BHADRADRI       Chandrugonda           Ravikampadu 17.39860
## 15   15         BHADRADRI         Dummugudem             Bandirevu 17.92000
## 16   16         BHADRADRI            Gundala         Kanchanapalli 17.79000
## 17   17         BHADRADRI           Julurpadu         P. Narsapuram 17.43817
## 18   18         BHADRADRI        Karakagudem           Karakagudem 18.03466
## 19   19         BHADRADRI     Laxmidevipalli        Laxmidevipalli 17.57300
## 20   20         BHADRADRI           Manuguru              Pagideru 17.97000
## 21   21         BHADRADRI          Palwancha               REGELLA 17.95000
## 22   22         BHADRADRI        Tekulapalli            Bethampudi 17.56000
## 23   23         BHADRADRI        Tekulapalli          Mutyalampadu 17.54000
## 24   24         BHADRADRI           Yellandu             Komararam 17.71000
## 25   25       BHUPALPALLY      Ghanpur Mulug            Chelpur(D) 18.36855
## 26   26       BHUPALPALLY            Kataram Shankarampally 125(D) 18.60220
## 27   27       BHUPALPALLY         Mahadevpur            Ambatipalli 18.69568
## 28   28       BHUPALPALLY            Regonda               Regonda 18.24000
## 29   29         HYDERABAD           Ameerpet             S.R.Nagar 17.44233
## 30   30         HYDERABAD          Asifnagar           Himayanagar 17.39764
## 31   31         HYDERABAD          Asifnagar            Kulsanapur 17.37400
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## 32   32          HYDERABAD         Bandlaguda        Chandraingutta 17.33300
## 33   33          HYDERABAD          Charminar           Darul Shifa 17.38100
## 34   34          HYDERABAD         Maredpally         Maredpally(s) 17.44100
## 35   35          HYDERABAD           Nampally              Nampally 17.38500
## 36   36          HYDERABAD           Saidabad         Juvinile home 17.36100
## 37   37           JAGITYAL         Dharmapuri            Dharmapuri 18.94694
## 38   38           JAGITYAL         Gollapalli            Gollapalli 18.79060
## 39   39           JAGITYAL      Ibrahimpatnam         Ibrahimpatnam 18.89861
## 40   40           JAGITYAL            Jagityal              Jagityal 18.82520
## 41   41           JAGITYAL         Kathalapur            Kathalapur 18.75278
## 42   42           JAGITYAL            Kodimal               Chepial 18.62472
## 43   43           JAGITYAL            Korutla               Korutla 18.81861
## 44   44           JAGITYAL            Mallapur              Mallapur 18.96470
## 45   45           JAGITYAL            Mallial             Nukapalli 18.70940
## 46   46           JAGITYAL            Metpalli              Metpalli 18.84778
## 47   47           JAGITYAL        Pegadapalli          Pegadapalli 18.70639
## 48   48           JAGITYAL             Raikal                Raikal 18.91034
## 49   49           JAGITYAL         Sarangapur            Sarangapur 18.92972
## 50   50           JAGITYAL            Velgatur              Velgatur 18.83530
## 51   51            JANGAON        Bachannapet          Bachannapet 17.79080
## 52   52            JANGAON        Devaruppula        Singarajupalli 17.59190
## 53   53            JANGAON             Jangaon               Jangaon 17.69730
## 54   54            JANGAON    Lingala ghanpur       Lingala ghanpur 17.65910
## 55   55            JANGAON         Palakurthi            Palakurthi 17.66910
## 56   56            JANGAON    Raghunadhapalli       Raghunadhapalli 17.76470
## 57   57            JANGAON            Zafergad              Zafergad 17.76510
## 58   58 JOGULAMBA(GADWAL)             Alampur               Alampur 15.89644
## 59   59 JOGULAMBA(GADWAL)             Dharoor               Dharoor 16.22439
## 60   60 JOGULAMBA(GADWAL)             Dharoor             Neelahally 16.26521
## 61   61 JOGULAMBA(GADWAL)              Gadwal                Gadwal 16.23260
## 62   62 JOGULAMBA(GADWAL)               Gattu                 Gattu 16.12870
## 63   63 JOGULAMBA(GADWAL)               Ieeza                 Ieeza 16.01518
## 64   64 JOGULAMBA(GADWAL)           K-T Doddi              Kondapur 16.07010
## 65   65 JOGULAMBA(GADWAL)           K-T Doddi             Kuchinerla 16.17900
## 66   66 JOGULAMBA(GADWAL)            Maldakal              Maldakal 16.12967
## 67   67 JOGULAMBA(GADWAL)              Manopad               Manopad 15.96560
## 68   68 JOGULAMBA(GADWAL)          Waddepalli           Santhinagar 15.94000
## 69   69         KAMAREDDY          Bansawada             Bansawada 18.39300
## 70   70         KAMAREDDY           Bhiknoor              Bhiknoor 18.19600
## 71   71         KAMAREDDY           Bhiknoor          P.D.Mallareddy 18.17300
## 72   72         KAMAREDDY            Bibipet               Bibipet 18.20500
## 73   73         KAMAREDDY          BICHKUNDA                Pulkal 18.39900
## 74   74         KAMAREDDY          Domakonda             Domakonda 18.25000
## 75   75         KAMAREDDY           Gandhari              Gandhari 18.39600
## 76   76         KAMAREDDY           Gandhari             Sarvapoor 18.36470
## 77   77         KAMAREDDY             Jukkal                Jukkal 18.36400
## 78   78         KAMAREDDY          Kamareddy                Adloor 18.34380
## 79   79         KAMAREDDY          Kamareddy        Narasannapally 18.26860
## 80   80         KAMAREDDY          Lingampet             Bhavanipet 18.27910
## 81   81         KAMAREDDY        Machareddy             Machareddy 18.32900
## 82   82         KAMAREDDY            Maddnur                Menoor 18.48300
## 83   83         KAMAREDDY       Nagireddipet           Malthummeda 18.11400
## 84   84         KAMAREDDY       Nasurullabad           Nasurullabad 18.46800
## 85   85         KAMAREDDY         Nizamsagar          Mohammadnagar 18.29310
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##  86   86         KAMAREDDY          Rajampet             Argonda 18.23400
##  87   87         KAMAREDDY         RAMAREDDY            Reddypet 18.40900
##  88   88         KAMAREDDY     Sadasivanagar        Sadasivanagar 18.40600
##  89   89         KAMAREDDY            Tadwai           Yerrapahad 18.29300
##  90   90        KARIMNAGAR       Choppadandi            Rukmapur 18.53340
##  91   91        KARIMNAGAR        Gangadhara           Gangadhara 18.57944
##  92   92        KARIMNAGAR         Huzurabad            Huzurabad 18.18949
##  93   93        KARIMNAGAR          Saidapur            Saidapur 18.21480
##  94   94        KARIMNAGAR         Thimmapur            Alugunur 18.40087
##  95   95           KHAMMAM           Bonakal          Mustikunta 17.04081
##  96   96           KHAMMAM            Kallur               Kallur 17.21000
##  97   97           KHAMMAM          Kamepalli         Kothalingala 17.42945
##  98   98           KHAMMAM      Khammam (R )            M.V.Palem 17.29670
##  99   99           KHAMMAM        Khammam(U)            Khammam I 17.23330
## 100  100           KHAMMAM        Khammam(U)           Khammam-II 17.25250
## 101  101           KHAMMAM         Konijerla           Konijerla 17.22110
## 102  102           KHAMMAM        Kusumanchi          Kusumanchi 17.22080
## 103  103           KHAMMAM         Mudigonda           Mudigonda 17.18750
## 104  104           KHAMMAM        Sathupalli         Prakashnagar 17.19420
## 105  105           KHAMMAM          Thallada         Anjanapuram 17.21470
## 106  106           KHAMMAM  Thirumalayapalem             Bachode 17.29970
## 107  107           KHAMMAM  Thirumalayapalem      Tirumalayapalem 17.31745
## 108  108           KHAMMAM            Vemsur              Vemsur 17.14420
## 109  109           KHAMMAM        Yerrupalem      Banigandlapadu 16.86000
## 110  110     KUMURAM BHEEM          Asifabad             Asifabad 19.35962
## 111  111     KUMURAM BHEEM        Kagaznagar           Kagaznagar 19.35571
## 112  112     KUMURAM BHEEM          Kerameri             Kerameri 19.44400
## 113  113     KUMURAM BHEEM          Kowthala             Kowthala 19.52190
## 114  114     KUMURAM BHEEM           Rebbena          Rebbena II 19.25700
## 115  115     KUMURAM BHEEM           Tiryani              Tiryani 19.17447
## 116  116       MAHABUBABAD     Dhantalapally       Dhantalapally 17.51470
## 117  117       MAHABUBABAD           Dornakal          Mannegudem 17.37411
## 118  118       MAHABUBABAD         Kesamudram          Kesamudram 17.68160
## 119  119       MAHABUBABAD              Koravi       Ayyagaripally 17.50300
## 120  120       MAHABUBABAD       Mahabubabad         Mahabubabad 17.59830
## 121  121       MAHABUBABAD         Marripeda           Marripeda 17.38520
## 122  122       MAHABUBABAD         Nellikudur          Nellikudur 17.58970
## 123  123       MAHABUBABAD              Torrur               Torrur 17.58360
## 124  124      MAHABUBNAGAR          Bhoothpur          Elkicherla 16.62300
## 125  125      MAHABUBNAGAR           CC Kunta          Damagnapur 16.49970
## 126  126      MAHABUBNAGAR           CC Kunta          Kurumurthy 16.44144
## 127  127      MAHABUBNAGAR           CC Kunta          Thirmalapur 16.48271
## 128  128      MAHABUBNAGAR        Devarkadara          Devarakadra 16.60580
## 129  129      MAHABUBNAGAR             Hanwada              Hanwada 16.80838
## 130  130      MAHABUBNAGAR           Jadcherla            Jadcherla 16.77418
## 131  131      MAHABUBNAGAR           Koilkonda          Dammaipally 16.75999
## 132  132      MAHABUBNAGAR  Mahabubnagar (R)                Kodur 16.68000
## 133  133      MAHABUBNAGAR    Mahabubnagar(U)            Yenugonda 16.76129
## 134  134      MAHABUBNAGAR             Midjil          Kothapalli 16.75060
## 135  135      MAHABUBNAGAR           Nawabpet             Nawabpet 16.88800
## 136  136        MANCHERIAL        Bellampally       Bellampally I 19.07203
## 137  137        MANCHERIAL             Chennur            Chennur I 18.85222
## 138  138        MANCHERIAL              Jaipur               Jaipur 18.84428
## 139  139        MANCHERIAL         Mandamarri           Mandamarri 18.97868
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## 140 140        MANCHERIAL            Tandur              Tandur  19.15787
## 141 141        MANCHERIAL        Vemanpally              Neelwai 19.04799
## 142 142             MEDAK          Chegunta             Chegunta 17.93410
## 143 143             MEDAK     Havelighanpur          Mutayapally 18.08450
## 144 144             MEDAK         Kulcharam            Rangampet 17.94510
## 145 145             MEDAK             Medak                Medak 18.05280
## 146 146             MEDAK         Narasapur            Narasapur 17.73500
## 147 147             MEDAK         Narasapur           Reddypally 17.78560
## 148 148             MEDAK        Papannapet           Papannapet 18.04217
## 149 149             MEDAK            Regode        T.lingampally 17.94335
## 150 150             MEDAK     Shankarampet          Gavvalapalli 18.05170
## 151 151             MEDAK    Shankarampet R          Shankarampet 17.97100
## 152 152             MEDAK          Shivampet             Shivampet 17.78630
## 153 153             MEDAK          Shivampet                 Gudur 17.78170
## 154 154             MEDAK          Shivampet           Usrikapally 17.82110
## 155 155             MEDAK             Tekmal                Tekmal 17.97540
## 156 156             MEDAK           Toopran              Islampur 17.87720
## 157 157             MEDAK           Toopran              Toopran 17.84130
## 158 158             MEDAK         Yeldurthy           Edulapally 17.96720
## 159 159             MEDAK         Yeldurthy             Kukunoor 17.91460
## 160 160             MEDAK         Yeldurthy           Ramayapally 17.94530
## 161 161          MEDCHAL              Alwal             Old Alwal 17.49400
## 162 162          MEDCHAL          Balanagar          Balanagar 1 17.47000
## 163 163          MEDCHAL         Kukatpally          Kaithalapur 17.47000
## 164 164          MEDCHAL         Kukatpally         Kukatpally 1 17.48100
## 165 165          MEDCHAL         Malkajgiri           Malkajgiri 17.44900
## 166 166          MEDCHAL       Qutubullapur       Gajularamaram 2 17.53000
## 167 168          MEDCHAL       Qutubullapur       Qutubullapur 2 17.50000
## 168 170           MULUGU      Eturu Nagaram     Eturu Nagaram (D) 18.35965
## 169 171           MULUGU      Eturu Nagaram     Eturu Nagaram (S) 18.33740
## 170 172           MULUGU      Govindaraopet                Pasra 18.20744
## 171 173           MULUGU      Govindaraopet         Project Nagar 18.26160
## 172 174      NAGARKURNOOL           Amarabad           Domalapenta 16.21158
## 173 175      NAGARKURNOOL             Balmur                Balmur 16.33113
## 174 176      NAGARKURNOOL         Bijinepalli           Bijinepalli 16.53528
## 175 177      NAGARKURNOOL         Kalwakuthy            Kalwakuthy 16.66700
## 176 178      NAGARKURNOOL             Kodair                Kodair 16.26962
## 177 179      NAGARKURNOOL           Kollapur              Kollapur 16.10700
## 178 180      NAGARKURNOOL             Lingal           Ambatipally 16.27700
## 179 181      NAGARKURNOOL       Nagarkurnool          Nagarkurnool 16.49174
## 180 182      NAGARKURNOOL         Telkapally            Telkapally 16.43509
## 181 183      NAGARKURNOOL        Thimmajipet           Gummakonda 16.62240
## 182 184      NAGARKURNOOL      Uppununuthala          Uppununthala 16.45002
## 183 185      NAGARKURNOOL            Veldanda              Veldanda 16.73106
## 184 186          NALGONDA    Advidevulapally            Ulsaipalem 16.70682
## 185 187          NALGONDA             Anumula                Anumula 16.79879
## 186 188          NALGONDA             Anumula           Chintagudem 16.83309
## 187 189          NALGONDA             Anumula             Rajavaram 16.68016
## 188 190          NALGONDA             Anumula            Sreerampur 16.72911
## 189 191          NALGONDA          Chandampet            Chandampet 16.57848
## 190 192          NALGONDA             Chandur             Angadipet 16.98408
## 191 193          NALGONDA             Chandur          Bangarigadda 16.98467
## 192 194          NALGONDA             Chandur                Chandur 16.96810
## 193 195          NALGONDA             Chandur           Sirdepally 17.01489
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## 194 196          NALGONDA          Chityala          Veliminedu 17.22892
## 195 197          NALGONDA       Devarakonda       Padamtipally 16.67664
## 196 198          NALGONDA       Devarakonda           Tatikole 16.62523
## 197 199          NALGONDA       Gundlapally           Vavikole 16.67579
## 198 200          NALGONDA        Gurrampode        Gurrampode 16.85171
## 199 201          NALGONDA        Gurrampode           Koppole 16.91462
## 200 202          NALGONDA      K.Mallepally      K.Mallepally 16.72939
## 201 203          NALGONDA          kanagala          kanagala 16.93734
## 202 204          NALGONDA         Kattangur     Cheruvu Annaram 17.19865
## 203 205          NALGONDA         Kattangur           Kattangur 17.16189
## 204 206          NALGONDA         Marriguda           Marriguda 16.93992
## 205 207          NALGONDA          Munugode           Kistapur 17.15625
## 206 208          NALGONDA          Munugode           Kompalli 17.09931
## 207 209          NALGONDA          Nakrekal      Arlagaddagudam 17.13911
## 208 210          NALGONDA          Nakrekal           Nakrekal 17.15934
## 209 211          NALGONDA          Nakrekal         Vallabhapur 17.23895
## 210 212          NALGONDA          Nalgonda         Mushampally 16.97492
## 211 213          NALGONDA          Nalgonda     S L B C G V guda 17.06018
## 212 214          NALGONDA          Nalgonda        Seetarampuram 17.11031
## 213 215          NALGONDA       Narketpalli          Akkenepally 17.29008
## 214 216          NALGONDA       Narketpalli          Narketpalli 17.20025
## 215 217          NALGONDA        Nidamanuru           Nidamanur 16.84000
## 216 218          NALGONDA         P.A Pally           Angadipet 16.71655
## 217 219          NALGONDA       Peddavoora           Velmaguda 16.77852
## 218 220          NALGONDA     Shaligowraram           P.Kondaram 17.24944
## 219 221          NALGONDA         Thiparthy           Thipparthy 17.01375
## 220 222          NALGONDA         Thiparthy           Mamidala 17.06521
## 221 224        NARAYANPET            Kosigi              Kosigi 16.98463
## 222 225        NARAYANPET            Maddur              Maddur 16.85700
## 223 226        NARAYANPET           Makthal             Makthal 16.50052
## 224 227        NARAYANPET            Marikal             Marikal 16.59204
## 225 228        NARAYANPET         Narayanpet          Kollampally 16.66794
## 226 229        NARAYANPET         Narayanpet           Kotakonda 16.75400
## 227 230        NARAYANPET         Narayanpet          Narayanapet 16.74230
## 228 231        NARAYANPET              Narva               Narva 16.47060
## 229 232        NARAYANPET            Utkoor              Utkoor 16.64070
## 230 233        NARAYANPET            Utkoor          Chinnaporla 16.58122
## 231 234            NIRMAL             Kadam               Kadam 19.09661
## 232 235            NIRMAL           Khanapur             Khanapur 19.04709
## 233 236            NIRMAL            Kubeer              Kubeer 19.24950
## 234 237            NIRMAL           Kuntala             Kuntala 19.16930
## 235 238            NIRMAL       Laxmanchanda          Laxmanchanda 19.01705
## 236 239            NIRMAL        Lokeswaram           Abdullapur 18.97030
## 237 240            NIRMAL        Lokeswaram           Lokeswaram 19.02450
## 238 241            NIRMAL             Mamada              Mamada 19.07797
## 239 242            NIRMAL             Nirmal              Nirmal 19.09242
## 240 243            NIRMAL         Sarangapur          Beeravelly 19.13964
## 241 244            NIRMAL              Tanur               Bhosi 19.10933
## 242 245         NIZAMABAD             Armoor              perkit 18.80800
## 243 246         NIZAMABAD            Bheemgal             Bheemgal 18.71500
## 244 247         NIZAMABAD              Bodhan              Bodhan 18.67050
## 245 248         NIZAMABAD            Darpally             Ramadugu 18.61300
## 246 249         NIZAMABAD           Dichpally           Yanampally 18.62700
## 247 250         NIZAMABAD            Indalwai             Gannaram 18.51250
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## 248 251         NIZAMABAD        Jakrampally          Jakrampally 18.70720
## 249 252         NIZAMABAD      Kammarapalli         Inayathnagar 18.70868
## 250 253         NIZAMABAD          Kotagiri               Kallur 18.51596
## 251 254         NIZAMABAD           Morthad              Morthad 18.82600
## 252 255         NIZAMABAD            Mugpal            Manchippa 18.53900
## 253 256         NIZAMABAD            Mupkal               Mupkal 18.91300
## 254 257         NIZAMABAD           Nandipet             Ailapoor 18.85300
## 255 258         NIZAMABAD           Nandipet             Nutpally 18.93650
## 256 259         NIZAMABAD           Nandipet               Velmal 18.83100
## 257 260         NIZAMABAD          Nizamabad            Arsapally 18.68534
## 258 261         NIZAMABAD             Renjal               Dupally 18.73300
## 259 262         NIZAMABAD             Rudrur               Rayakur 18.61020
## 260 263         NIZAMABAD          Sirikonda         Peddavolgote 18.60400
## 261 264         NIZAMABAD           Vailpoor            Ankushpur 18.81100
## 262 265         NIZAMABAD           Vailpoor             Vailpoor 18.77300
## 263 266         NIZAMABAD              Varni                Varni 18.54300
## 264 267         NIZAMABAD          Yedapalli            Yedapalli 18.67800
## 265 268       PEDDAPALLY          Dharmaram            Dharmaram 18.74530
## 266 269       PEDDAPALLY            Eligedu              Eligedu 18.55216
## 267 270       PEDDAPALLY          Julapalli            Julapalli 18.62050
## 268 271       PEDDAPALLY             Odella               Odella 18.45280
## 269 272       PEDDAPALLY         Peddapalli           Peddapalli 18.60170
## 270 273       RANGAREDDY            Chevella                 Alur 17.32400
## 271 274       RANGAREDDY             Amangal              Amangal 16.84420
## 272 275       RANGAREDDY            Chevella          Dharmasagar 17.33600
## 273 276       RANGAREDDY    Serilingampally           Gachibowli 17.43000
## 274 277       RANGAREDDY            Kandukur              Kandukur 17.08000
## 275 278       RANGAREDDY          Keshampet            Keshampet 16.94394
## 276 279       RANGAREDDY             Kothur               Kothur 17.15870
## 277 280       RANGAREDDY             Madgula              Madgula 16.84333
## 278 281       RANGAREDDY         Maheswaram           Maheswaram 17.13500
## 279 282       RANGAREDDY             Manchal              Manchal 17.16000
## 280 283       RANGAREDDY      Ibrahimpatnam          Mangalpally 17.22000
## 281 284       RANGAREDDY           Moinabad             Moinabad 17.33000
## 282 285       RANGAREDDY         Shamshabad             Palmokole 17.20400
## 283 286       RANGAREDDY     Rajender Nagar        Rajender Nagar 17.31600
## 284 287       RANGAREDDY        Farooqnagar              Shadnagar 17.06319
## 285 288       RANGAREDDY             Shahbad              Shahbad 17.20200
## 286 289       RANGAREDDY       Shankarpalli         Shankarpalli 17.45300
## 287 290       RANGAREDDY     Talakondapalli       Talakondapalli 16.89000
## 288 291       RANGAREDDY            Yacharam             Yacharam 17.05000
## 289 292       SANGAREDDY              Andole               Jogipet 17.83581
## 290 293       SANGAREDDY         Gummadiddla          Gummadiddla 17.68490
## 291 294       SANGAREDDY           Hathnoora            Borapatla 17.67130
## 292 295       SANGAREDDY           Hathnoora            Nasthipur 17.70470
## 293 296       SANGAREDDY            Jinnaram                Ootla 17.63090
## 294 297       SANGAREDDY              Kalher           Bachapally 18.13860
## 295 298       SANGAREDDY              Kalher         Meerkhanpally 18.12370
## 296 299       SANGAREDDY               Kandi              Byathole 17.61110
## 297 300       SANGAREDDY          Patancheru               Isnapur 17.55190
## 298 301       SANGAREDDY          Patancheru          Patancheruvu 17.52583
## 299 302       SANGAREDDY           R.C.Puram             R.C.Puram 17.50910
## 300 303          SIDDIPET              Gajwel                Gajwel 17.84470
## 301 304          SIDDIPET           Jagdevpur            Munigadapa 17.81330
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## 302 305          SIDDIPET           Mirdoddi           Bhoompalli 18.12080
## 303 306          SIDDIPET             Mulugu               Mulugu 17.72140
## 304 307          SIDDIPET           Nanganur               Rampur 18.08880
## 305 308          SIDDIPET            Raipole              Raipole 17.92560
## 306 309          SIDDIPET           Siddipet             Siddipet 18.10330
## 307 310          SIDDIPET             Wargal            Majidpalli 17.82330
## 308 311          SIRCILLA       Gambhiraopet               Narmal 18.28373
## 309 312          SIRCILLA      Illanthakunta       Illanthukunta  18.31194
## 310 313          SIRCILLA         Konaraopet             Nizamabad 18.47030
## 311 314          SIRCILLA           Sircilla       Sircilla(urban) 18.35555
## 312 315          SIRCILLA         Vemulawada    Vemulawada(rural) 18.48642
## 313 316          SIRCILLA      Yellareddipet    Racherla Boppaspur 18.37720
## 314 317          SURYAPET          Arvapally                Kodur 17.31655
## 315 318          SURYAPET          Arvapally              Nagaram 17.38669
## 316 319          SURYAPET           Chivemla       B. Chandupatla 17.14175
## 317 320          SURYAPET        Mattampalle      Raghunadhapalem 16.75354
## 318 321          SURYAPET       Mellacheruvu         Mellacheruvu 16.83738
## 319 322          SURYAPET          Nuthankal            Nuthankal 17.33383
## 320 323          SURYAPET      Thungathurthi         Thungathurthi 17.39874
## 321 324         VIKARABAD          Bantwaram             Bantwaram 17.44500
## 322 325         VIKARABAD        Basheerabad           Basheerabad 17.21100
## 323 326         VIKARABAD          Bomraspet             Bomraspet 17.16400
## 324 327         VIKARABAD            Dharoor               Dharoor 17.30300
## 325 328         VIKARABAD               Doma                  Doma 17.08800
## 326 329         VIKARABAD        Doulathabad           Doulathabad 16.99830
## 327 330         VIKARABAD          Kodangal             Kodangal 17.09920
## 328 331         VIKARABAD          Kodangal          Rudraram (S) 17.13300
## 329 332         VIKARABAD          Marpalli               Marpalli 17.52900
## 330 333         VIKARABAD          Nawabpet     Vattinenipally(s) 17.44500
## 331 334         VIKARABAD            Parigi                Parigi 17.18000
## 332 335         VIKARABAD          Peddamul              Peddamul 17.33000
## 333 336         VIKARABAD             Pudur                 Pudur 17.26400
## 334 337         VIKARABAD            Tandur                Tandur 17.25100
## 335 338         VIKARABAD         Vikarabad            Vikarabad(S) 17.32100
## 336 339         VIKARABAD              Yalal                 Yalal 17.20000
## 337 340        WANAPARTHY          Atmakuru              Atmakuru 16.33700
## 338 341        WANAPARTHY           Ghanpur              Ghanapur 16.56306
## 339 342        WANAPARTHY          Gopalpet              Gopalpet 16.37860
## 340 343        WANAPARTHY         Kothakota            Kanaipally 16.38826
## 341 344        WANAPARTHY            Pangal                Pangal 16.24721
## 342 345        WANAPARTHY           Pebbair          Ayyavaripalli 16.11560
## 343 346        WANAPARTHY      Peddamandadi          Peddamandadi 16.43060
## 344 347     WARANGAL (R)             Atmakur               Atmakur 18.06860
## 345 348     WARANGAL (R)       Chennaraopet          Chennaraopet 17.88300
## 346 349     WARANGAL (R)           Duggondi              Duggondi 18.01940
## 347 350     WARANGAL (R)           Khanapur              Khanapur 17.89880
## 348 351     WARANGAL (R)         Narasampet            Narasampet 17.92270
## 349 352     WARANGAL (R)           Nekkonda               Ameenpet 17.80810
## 350 353     WARANGAL (R)             Parkal                 Parkal 18.20160
## 351 354     WARANGAL (R)       Parvathagiri          Parvathagiri 17.74447
## 352 355     WARANGAL (R)         Rayaparthy            Rayaparthy 17.69420
## 353 356     WARANGAL (R)              Sangem                Sangem 17.88440
## 354 357     WARANGAL (R)       Wardhannapet          Wardhannapet 17.77300
## 355 358      WARANGAL (U) Bheemadevarapallly               Vangara 18.13389
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## 356 359      WARANGAL (U)        Dharmasagar          Narayanagiri 17.99050
## 357 360      WARANGAL (U)         Hanamkonda            Hanumkonda 18.00080
## 358 361      WARANGAL (U)         Hanamkonda               Mamnoor 17.90690
## 359 362      WARANGAL (U)        Hasanparthi            Seethampet 18.07760
## 360 363      WARANGAL (U)          Kamalapur            Shanigaram 18.18408
## 361 364      WARANGAL (U)           warangal             Charbowli 17.98190
## 362 365           YADADRI              Alair             Kolanpaka 17.69706
## 363 366           YADADRI     B.Pochampalli         B.Pochampalli 17.33620
## 364 368           YADADRI        Choutuppal            D.Malkapur 17.25826
## 365 369           YADADRI          Mothukur         Kanchanapalli 17.40375
## 366 370           YADADRI            Rajapet             Bondugala 17.76831
## 367 372           YADADRI            Rajapet               Rajapet 17.72943
## 368 373           YADADRI            Rajapet               Somaram 17.72567
## 369 374           YADADRI        Ramannapet             Ramanapet 17.28312
## 370 375           YADADRI       S.Narayanpur          S.Narayanpur 17.14472
## 371 376           YADADRI       Thurkapally            Gandamalla 17.73310
## 372 377           YADADRI         Valigonda            T. somaram 17.39995
## 373 378           YADADRI         Valigonda           Vemulakonda 17.34778
## 374 379           YADADRI           Y.Gutta             Mallapuram 17.63356
##     long_gis    gwl            season    pH  E.C     TDS CO3      HCO3   Cl
## 1   78.52470  5.090 postmonsoon 2018   8.28  745  476.80   0 220.00000   60
## 2   78.35083  5.100 postmonsoon 2018   8.29  921  589.44   0 230.00000   80
## 3   78.51222  4.980 postmonsoon 2018   7.69  510  326.40   0 200.00000   30
## 4   78.64000  5.750 postmonsoon 2018   8.09  422  270.08   0 160.00000   10
## 5   78.85265  2.150 postmonsoon 2018   8.21 2321 1485.44   0 300.00000  340
## 6   78.41216  8.800 postmonsoon 2018   8.29 1030  659.20   0 340.00000   60
## 7   78.39690  3.950 postmonsoon 2018   7.62 2129 1362.56   0 340.00000  330
## 8   78.42680  3.700 postmonsoon 2018   8.31  982  628.48  30 210.00000   40
## 9   78.76850  3.120 postmonsoon 2018   8.22 2420 1548.80   0 420.00000  290
## 10  80.82610 15.600 postmonsoon 2018   8.05  250  160.00   0  57.63929   30
## 11  80.80924  5.590 postmonsoon 2018   7.97 1840 1177.60   0 207.87190  380
## 12  80.90092  5.360 postmonsoon 2018   7.93 1550  992.00   0 547.19566  140
## 13  80.79110  6.020 postmonsoon 2018   8.50 1390  889.60  60 299.95043  170
## 14  80.61060 11.750 postmonsoon 2018   8.00 2520 1612.80   0 240.98180  280
## 15  80.92000  2.680 postmonsoon 2018   8.66  869  556.16  40 249.53121   90
## 16  80.42000  1.600 postmonsoon 2018   8.24  782  500.48   0 114.24358   60
## 17  80.52032 16.220 postmonsoon 2018   8.63 2880 1843.20  60 500.12778  480
## 18  80.56815  2.580 postmonsoon 2018   7.18  490  313.60   0 177.45794   40
## 19  80.61900  4.340 postmonsoon 2018   7.84 1010  646.40   0 248.26828  110
## 20  80.73000  3.590 postmonsoon 2018   8.93  460  294.40  40 142.34078   30
## 21  80.58000  4.220 postmonsoon 2018   7.79 1081  691.84   0 153.53630  160
## 22  80.45000  2.750 postmonsoon 2018   8.02 2080 1331.20   0 208.13906  360
## 23  80.50000  5.380 postmonsoon 2018   8.57 1290  825.60  40 352.84903  130
## 24  80.32000  4.360 postmonsoon 2018   8.84  991  634.24  60 242.06566  110
## 25  79.85350  4.530 postmonsoon 2018   8.02  421  269.44   0 110.00000   20
## 26  79.89830 20.820 postmonsoon 2018   7.71  404  258.56   0 110.00000   40
## 27  80.06186 21.570 postmonsoon 2018   8.10  368  235.52   0 110.00000   30
## 28  79.77750  8.770 postmonsoon 2018   7.94 1452  929.28   0 260.00000  190
## 29  78.44392 17.950 postmonsoon 2018   7.07  819  524.16   0 274.99906   60
## 30  78.44525  4.830 postmonsoon 2018   7.17 1149  735.36   0 215.67131  220
## 31  78.43700  6.180 postmonsoon 2018   7.26 1194  764.16   0 366.72923  110
## 32  78.48400  9.780 postmonsoon 2018   7.05 1445  924.80   0 398.69329  170
## 33  78.48500  5.650 postmonsoon 2018   7.58  779  498.56   0 275.09787   60
## 34  78.50900     NA postmonsoon 2018   6.96 1379  882.56   0 316.49273  160
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## 35  78.47400  2.410 postmonsoon 2018   8.38 1231  787.84  40 346.33074  120
## 36  78.50800  4.430 postmonsoon 2018   7.48  839  536.96   0 227.68716   90
## 37  79.10194  5.320 postmonsoon 2018   8.20 2227 1425.28   0 140.00000  520
## 38  79.05220  4.440 postmonsoon 2018   8.27  776  496.64   0 100.00000  150
## 39  78.57944  3.210 postmonsoon 2018   7.97 1140  729.60   0 190.00000  110
## 40  78.84610  9.190 postmonsoon 2018   7.99  624  399.36   0 100.00000  100
## 41  78.68972  7.570 postmonsoon 2018   7.92 1027  657.28   0 180.00000  140
## 42  78.93583 10.350 postmonsoon 2018   8.07  564  360.96   0 140.00000   50
## 43  78.70639  6.080 postmonsoon 2018   8.21 1083  693.12   0 190.00000  170
## 44  78.70640  6.420 postmonsoon 2018   8.19  973  622.72   0 200.00000  100
## 45  78.92220  8.530 postmonsoon 2018   8.33 1458  933.12  80 380.00000  240
## 46  78.62055 13.530 postmonsoon 2018   8.12 1234  789.76   0 310.00000  140
## 47  79.06444  3.470 postmonsoon 2018   8.17 1265  809.60   0 310.00000  120
## 48  78.80285  2.700 postmonsoon 2018   7.97  742  474.88   0  90.00000  120
## 49  78.95806  4.550 postmonsoon 2018   8.17 1087  695.68   0 140.00000  150
## 50  79.16970  3.950 postmonsoon 2018   8.34 1057  676.48  50 200.00000  150
## 51  79.04220 15.180 postmonsoon 2018   8.34  550  352.00  30 160.00000   30
## 52  79.27380 10.950 postmonsoon 2018   8.07 1664 1064.96   0 230.00000  230
## 53  79.14740  8.020 postmonsoon 2018   8.27  923  590.72   0 210.00000  110
## 54  79.19970 10.150 postmonsoon 2018   8.45 1053  673.92  50 220.00000  110
## 55  79.42250 17.950 postmonsoon 2018   8.23  307  196.48   0 130.00000   20
## 56  79.26360 34.850 postmonsoon 2018   8.33 1280  819.20  30 270.00000  150
## 57  79.48700 12.060 postmonsoon 2018   8.14 1857 1188.48   0 260.00000  340
## 58  78.12110  3.090 postmonsoon 2018   8.52 3290 2105.60  40 430.79776  720
## 59  77.67891 24.010 postmonsoon 2018   7.98 2000 1280.00   0 356.36039  340
## 60  77.64179 21.170 postmonsoon 2018   7.72 2120 1356.80   0 382.93698  390
## 61  77.80210  4.580 postmonsoon 2018   7.69 2890 1849.60   0 414.94298  600
## 62  77.57570  4.880 postmonsoon 2018   8.30 1304  834.56  20 275.96536  190
## 63  77.67161 21.050 postmonsoon 2018   8.40 2780 1779.20  40 664.14730  370
## 64  77.83150  4.230 postmonsoon 2018   7.92 1266  810.24   0 193.93432  180
## 65  77.52600  9.090 postmonsoon 2018   7.98  583  373.12   0 198.36715   30
## 66  77.68760  3.500 postmonsoon 2018   7.91 1649 1055.36   0 300.53759  260
## 67  77.95330 13.950 postmonsoon 2018   7.81 3380 2163.20   0 575.98464  570
## 68  77.83900  6.650 postmonsoon 2018   8.24 3260 2086.40   0 553.23781  550
## 69  77.87900  4.500 postmonsoon 2018   8.21 1685 1078.40   0 489.76142   80
## 70  78.39900 22.390 postmonsoon 2018   8.04 1509  965.76   0 368.42925  200
## 71  78.45300 32.110 postmonsoon 2018   7.48  923  590.72   0 300.81011   50
## 72  78.52300 30.830 postmonsoon 2018   7.31 1059  677.76   0 235.11723  150
## 73  77.76700  5.320 postmonsoon 2018   7.23 1305  835.20   0 249.04756  220
## 74  78.43600 30.320 postmonsoon 2018   7.64 1185  758.40   0 272.89507  170
## 75  78.10700 19.820 postmonsoon 2018   7.85  980  627.20   0 391.44178   50
## 76  77.98510 14.830 postmonsoon 2018   7.79  985  630.40   0 333.39753   70
## 77  77.60400  7.420 postmonsoon 2018   7.32 3590 2297.60   0 552.00014  720
## 78  78.34350 22.150 postmonsoon 2018   7.80  624  399.36   0 189.91007   60
## 79  78.36170 23.750 postmonsoon 2018   7.52  935  598.40   0 306.55458   80
## 80  78.05800  7.630 postmonsoon 2018   7.45 1218  779.52   0 380.20962  100
## 81  78.49300 12.740 postmonsoon 2018   7.20  522  334.08   0 205.32096   30
## 82  77.65200 12.760 postmonsoon 2018   7.81  684  437.76   0 231.73199   40
## 83  78.14200 18.650 postmonsoon 2018   7.32  940  601.60   0 328.95071   80
## 84  77.87300  2.490 postmonsoon 2018   7.32  881  563.84   0 353.18896   40
## 85  77.90866  2.820 postmonsoon 2018   7.45  639  408.96   0 225.49797   50
## 86  78.27200 14.450 postmonsoon 2018   7.69  685  438.40   0 293.49326   20
## 87  78.41700 15.300 postmonsoon 2018   7.32  959  613.76   0 300.53141  100
## 88  78.26400  7.890 postmonsoon 2018   7.35  600  384.00   0 171.84704   60
```

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## 89  78.22300  3.320 postmonsoon 2018   8.02 1020  652.80   0 254.90796  100
## 90  79.14610 12.280 postmonsoon 2018   8.16  443  283.52   0 160.00000   20
## 91  79.00889 14.900 postmonsoon 2018   8.25  722  462.08   0 220.00000   70
## 92  79.40757  6.880 postmonsoon 2018   8.07  666  426.24   0 180.00000   50
## 93  79.30517 11.680 postmonsoon 2018   8.24  872  558.08   0 170.00000   80
## 94  79.15123  5.810 postmonsoon 2018   8.27  352  225.28   0 120.00000   20
## 95  80.22314  1.380 postmonsoon 2018   7.25 2430 1555.20   0 416.51278  400
## 96  80.54670  2.600 postmonsoon 2018   8.25 1014  648.96   0 162.14750  190
## 97  80.23780  5.630 postmonsoon 2018   8.40  940  601.60  40 171.86907  120
## 98  80.09690  2.850 postmonsoon 2018   7.43 2530 1619.20   0 474.27309  380
## 99  80.13330  1.050 postmonsoon 2018   7.80 1092  698.88   0 405.23684   80
## 100 80.14360  2.010 postmonsoon 2018   8.17 1435  918.40   0 420.24765  150
## 101 80.29080  2.120 postmonsoon 2018   7.75 1100  704.00   0 293.93296  130
## 102 79.95830  7.900 postmonsoon 2018   7.69 1030  659.20   0 231.75320  130
## 103 80.09860  1.650 postmonsoon 2018   7.97 1055  675.20   0 287.28573   90
## 104 80.89420 38.250 postmonsoon 2018   7.84  695  444.80   0 211.72105   70
## 105 80.46250  5.610 postmonsoon 2018   7.86 1705 1091.20   0 470.81989  220
## 106 79.90060  3.850 postmonsoon 2018   7.70 1725 1104.00   0 517.06869  190
## 107 80.05090  2.550 postmonsoon 2018   7.75 1412  903.68   0 232.70868  160
## 108 80.80500  2.750 postmonsoon 2018   8.22  922  590.08   0 174.42415  130
## 109 80.48000 16.100 postmonsoon 2018   7.75  967  618.88   0 388.26183   20
## 110 79.28606 20.300 postmonsoon 2018   7.98 1285  822.40   0 420.00000   70
## 111 79.49700  4.200 postmonsoon 2018   8.02  612  391.68   0 160.00000   40
## 112 79.05625  9.580 postmonsoon 2018   7.48  702  449.28   0 230.00000   40
## 113 79.73240  4.480 postmonsoon 2018   7.62  549  351.36   0 200.00000   30
## 114 79.41597  6.200 postmonsoon 2018   7.48  679  434.56   0 240.00000   40
## 115 79.27225  8.850 postmonsoon 2018   7.68  674  431.36   0 290.00000   30
## 116 79.73470  4.300 postmonsoon 2018   8.28 1846 1181.44   0 280.00000  260
## 117 80.04388  5.730 postmonsoon 2018   8.31 1296  829.44  60 510.00000   30
## 118 79.90690  5.800 postmonsoon 2018   8.26 1135  726.40   0 300.00000   70
## 119 79.98860  3.590 postmonsoon 2018   8.35 1212  775.68  60 230.00000   90
## 120 80.00110  5.100 postmonsoon 2018   8.33 1096  701.44  30 200.00000   50
## 121 79.89410  6.700 postmonsoon 2018   8.12 1896 1213.44   0 310.00000  260
## 122 79.75970  6.690 postmonsoon 2018   8.15  212  135.68   0  30.00000   20
## 123 79.66110  8.190 postmonsoon 2018   7.98 1774 1135.36   0 280.00000  260
## 124 78.11600 19.590 postmonsoon 2018   8.16  398  254.72   0 112.40088   50
## 125 77.75540  5.080 postmonsoon 2018   8.39  637  407.68  60 173.50350   50
## 126 77.81676 23.240 postmonsoon 2018   8.45  711  455.04  80 106.47677  100
## 127 77.82427  6.780 postmonsoon 2018   8.34  517  330.88  40 143.32294   40
## 128 77.83284 11.440 postmonsoon 2018   8.30 1941 1242.24   0 544.41608  250
## 129 77.89725 20.490 postmonsoon 2018   8.10 1546  989.44   0 196.31529  270
## 130 78.12240 22.350 postmonsoon 2018   7.79 1669 1068.16   0 185.20071  350
## 131 77.89946 14.050 postmonsoon 2018   7.84 1473  942.72   0 232.74656  280
## 132 77.92400 19.630 postmonsoon 2018   8.33 1211  775.04  20 264.81131  190
## 133 78.02098 18.130 postmonsoon 2018   7.98 1856 1187.84   0 312.02166  350
## 134 78.23150 15.340 postmonsoon 2018   8.00 1974 1263.36   0 366.62213  350
## 135 78.02390 11.070 postmonsoon 2018   8.06 1667 1066.88   0 186.19126  330
## 136 79.50311 15.240 postmonsoon 2018   7.49  758  485.12   0 220.00000   70
## 137 79.78022  6.660 postmonsoon 2018   7.64  678  433.92   0 220.00000   80
## 138 79.57997  2.970 postmonsoon 2018   8.43 2783 1781.12  50 320.00000  540
## 139 79.47785  3.680 postmonsoon 2018   7.72 1255  803.20   0 170.00000  170
## 140 79.45625 14.470 postmonsoon 2018   7.70  528  337.92   0 170.00000   60
## 141 79.81505  0.780 postmonsoon 2018   7.58  689  440.96   0 220.00000   60
## 142 78.51860 26.120 postmonsoon 2018   7.79  802  513.28   0 337.01024   30
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## 143 78.21890 16.790 postmonsoon 2018   7.75  841  538.24   0 258.20097   90
## 144 78.11760 41.700 postmonsoon 2018   7.74 1090  697.60   0 356.79685  110
## 145 78.27080 16.450 postmonsoon 2018   8.05  804  514.56   0 188.18677  130
## 146 78.28190 19.830 postmonsoon 2018   7.92 1450  928.00   0 218.92109  280
## 147 78.26330 18.840 postmonsoon 2018   7.40 2070 1324.80   0 309.14611  400
## 148 78.08535 21.280 postmonsoon 2018   7.75 1350  864.00   0 438.51630  130
## 149 77.82796 11.460 postmonsoon 2018   7.80  870  556.80   0 147.04448  170
## 150 77.91720 13.470 postmonsoon 2018   8.20  830  531.20   0 166.42741  150
## 151 78.37200 19.960 postmonsoon 2018   7.43 2830 1811.20   0 337.67671  590
## 152 78.37000 19.850 postmonsoon 2018   7.51 2110 1350.40   0 212.42272  480
## 153 78.36740 25.010 postmonsoon 2018   7.67 1721 1101.44   0 209.01570  320
## 154 78.39490 23.600 postmonsoon 2018   8.16  714  456.96   0 266.61175   40
## 155 78.03040 30.590 postmonsoon 2018   8.16 1310  838.40   0 264.99329  170
## 156 78.47460 37.300 postmonsoon 2018   7.98  350  224.00   0 113.62739   30
## 157 78.47750  9.660 postmonsoon 2018   7.45 2920 1868.80   0 172.16960  770
## 158 78.34920 22.530 postmonsoon 2018   8.23  382  244.48   0 136.13405   30
## 159 78.32080  4.750 postmonsoon 2018   7.62  710  454.40   0 194.74803   80
## 160 78.32130 12.830 postmonsoon 2018   8.24  381  243.84   0 121.89580   40
## 161 78.50800  9.360 postmonsoon 2018   7.29  870  556.80   0 340.32660   50
## 162 78.45000  8.970 postmonsoon 2018   8.30 1085  694.40   0 337.90002  120
## 163 78.40000  4.840 postmonsoon 2018   7.49 2250 1440.00   0 388.55446  460
## 164 78.39700 22.010 postmonsoon 2018   8.14  412  263.68   0 153.60310   30
## 165 78.53500 19.460 postmonsoon 2018   7.47 1668 1067.52   0 342.72672  240
## 166 78.42000  9.790 postmonsoon 2018   7.17 1051  672.64   0 390.10017   50
## 167 78.46000 31.130 postmonsoon 2018   7.82 1411  903.04   0 376.34782  200
## 168 80.44002 13.020 postmonsoon 2018   8.36  240  153.60  30  40.00000   20
## 169 80.42320 13.150 postmonsoon 2018   8.16  340  217.60   0 120.00000   30
## 170 80.17152  2.620 postmonsoon 2018   7.81 1612 1031.68   0 380.00000  250
## 171 80.19440  3.590 postmonsoon 2018   8.08 1569 1004.16   0 520.00000  110
## 172 78.87839  6.060 postmonsoon 2018   7.20 1059  677.76   0 212.08152  150
## 173 78.56638 23.380 postmonsoon 2018   7.49 1574 1007.36   0 409.67349  210
## 174 78.19642 22.760 postmonsoon 2018   7.03 1986 1271.04   0 399.61034  320
## 175 78.48800 31.750 postmonsoon 2018   7.58 2060 1318.40   0 354.84084  330
## 176 78.27434  2.650 postmonsoon 2018   7.26 1475  944.00   0 486.83475  130
## 177 78.30600  1.730 postmonsoon 2018   7.29 2742 1754.88   0 417.36750  600
## 178 78.44600  4.530 postmonsoon 2018   7.82 1299  831.36   0 401.15076  130
## 179 78.30262 25.000 postmonsoon 2018   7.34 1592 1018.88   0 341.37904  240
## 180 78.44031  3.300 postmonsoon 2018   7.34 2870 1836.80   0 581.62538  420
## 181 78.19000 15.550 postmonsoon 2018   7.50 1169  748.16   0 367.24321   80
## 182 78.59133  9.840 postmonsoon 2018   7.30 1287  823.68   0 345.43259  150
## 183 78.52110 29.720 postmonsoon 2018   7.18 3730 2387.20   0 390.83832  620
## 184 79.49970  0.570 postmonsoon 2018   8.09 1012  647.68   0 282.81939  130
## 185 79.28955 16.410 postmonsoon 2018   8.88 1705 1091.20  60 617.50040   20
## 186 79.29209  3.470 postmonsoon 2018   8.25  430  275.20   0 143.23414   40
## 187 79.40751  7.840 postmonsoon 2018   7.75 1764 1128.96   0 301.69276  310
## 188 79.30464  5.350 postmonsoon 2018   8.15 1409  901.76   0 343.21496  200
## 189 78.88836 12.090 postmonsoon 2018   7.19 1830 1171.20   0 383.05999  320
## 190 79.01842 13.840 postmonsoon 2018   9.00 2530 1619.20  60 483.24371  310
## 191 79.01136 14.245 postmonsoon 2018   8.33 1450  928.00  20 542.26827   80
## 192 79.06010 10.640 postmonsoon 2018   8.92 1163  744.32  40 349.83263   60
## 193 79.06308 13.610 postmonsoon 2018   8.84 1161  743.04  40 284.27677  130
## 194 79.02017 28.960 postmonsoon 2018   7.90 1480  947.20   0 298.13813  180
## 195 78.79738 17.290 postmonsoon 2018   7.95  823  526.72   0 203.46715   60
## 196 78.85665 24.340 postmonsoon 2018   8.65  745  476.80  40 274.56231   20
```

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## 197 78.76505  7.170 postmonsoon 2018   9.21 3450 2208.00  60 970.58896  370
## 198 79.09138  2.140 postmonsoon 2018   7.30 1241  794.24   0 360.25932  150
## 199 79.14688  1.300 postmonsoon 2018   8.13  406  259.84   0 101.48668   60
## 200 78.98103 20.360 postmonsoon 2018   7.49 2740 1753.60   0 244.21596  440
## 201 79.19843  7.540 postmonsoon 2018   7.58 1292  826.88   0 293.40195  210
## 202 79.35425 39.750 postmonsoon 2018   7.29 2810 1798.40   0 260.73746  770
## 203 79.32030  9.850 postmonsoon 2018   7.17 2670 1708.80   0 533.86399  520
## 204 78.86380 12.980 postmonsoon 2018   7.65 1320  844.80   0 283.20758  200
## 205 79.01703 13.460 postmonsoon 2018   8.10 1497  958.08   0 480.41543  170
## 206 78.99371  9.430 postmonsoon 2018   7.17 1926 1232.64   0 388.31808  320
## 207 79.40064 14.580 postmonsoon 2018   7.98 1411  903.04   0 364.46766  210
## 208 79.42098 10.650 postmonsoon 2018   7.64 1620 1036.80   0 278.30641  320
## 209 79.47989  2.080 postmonsoon 2018   8.33 1767 1130.88  20 328.11547  350
## 210 79.32478 16.870 postmonsoon 2018   8.30 1352  865.28  20 285.35710  200
## 211 79.30091  5.700 postmonsoon 2018   7.62  487  311.68   0 106.41660   80
## 212 79.21675 11.110 postmonsoon 2018   8.60  781  499.84  40 149.75097   90
## 213 79.23565  1.900 postmonsoon 2018   7.71 2270 1452.80   0 349.88106  510
## 214 79.19130 19.470 postmonsoon 2018   8.20  809  517.76   0 313.92088   20
## 215 79.28528  4.670 postmonsoon 2018   7.78 2020 1292.80   0 397.05721  330
## 216 79.08447  9.020 postmonsoon 2018   7.09 1715 1097.60   0 280.55878  260
## 217 79.18302 13.930 postmonsoon 2018   8.46  691  442.24  40 227.08985   40
## 218 79.42306 11.690 postmonsoon 2018   7.97 2380 1523.20   0 476.03898  430
## 219 79.41831  8.055 postmonsoon 2018   7.54 1310  838.40   0 308.00322  220
## 220 79.46500 12.840 postmonsoon 2018   7.47 4850 3104.00   0 582.34345  950
## 221 77.70551 13.320 postmonsoon 2018   7.15 2260 1446.40   0 155.12787  440
## 222 77.60700 13.070 postmonsoon 2018   7.61 1248  798.72   0 154.46005  270
## 223 77.50010 13.880 postmonsoon 2018   8.36  920  588.80  40 192.75638  140
## 224 77.69817 15.260 postmonsoon 2018   8.29  879  562.56   0 388.68992   20
## 225 77.61689  7.190 postmonsoon 2018   8.76 1170  748.80 100 362.64287   60
## 226 77.63779  7.990 postmonsoon 2018   8.06 1704 1090.56   0 167.34713  350
## 227 77.48120 14.710 postmonsoon 2018   7.49 1596 1021.44   0 373.57083  190
## 228 77.65670 18.510 postmonsoon 2018   8.19 1878 1201.92   0 536.43862  240
## 229 77.50030  7.560 postmonsoon 2018   8.12  957  612.48   0 241.11741  120
## 230 77.51696  8.800 postmonsoon 2018   7.90 3500 2240.00   0 415.18824  720
## 231 78.77594  2.010 postmonsoon 2018   8.16  645  412.80   0 210.00000   50
## 232 78.66213  6.330 postmonsoon 2018   8.18  654  418.56   0 210.00000   40
## 233 77.94583  4.530 postmonsoon 2018   8.33  590  377.60   0 200.00000   40
## 234 78.10040 11.590 postmonsoon 2018   8.24  918  587.52   0 230.00000   90
## 235 78.46086  1.760 postmonsoon 2018   8.27  554  354.56   0 130.00000   60
## 236 78.03780 14.390 postmonsoon 2018   8.26  441  282.24   0  80.00000   70
## 237 78.08990  8.630 postmonsoon 2018   8.29  446  285.44   0 180.00000   20
## 238 78.52292  2.520 postmonsoon 2018   8.01  620  396.80   0 160.00000   70
## 239 78.34353  2.570 postmonsoon 2018   8.32  342  218.88  20  90.00000   30
## 240 78.26197 12.820 postmonsoon 2018   8.10  546  349.44   0 180.00000   40
## 241 77.87944 25.080 postmonsoon 2018   8.27 1095  700.80   0 180.00000  170
## 242 78.31500  8.670 postmonsoon 2018   7.59 1302  833.28   0 255.41781  140
## 243 78.44200 10.930 postmonsoon 2018   7.42 2430 1555.20   0 452.60168  470
## 244 77.89250  4.750 postmonsoon 2018   7.24 1856 1187.84   0 403.88870  250
## 245 78.30900  8.130 postmonsoon 2018   7.23 1173  750.72   0 228.68901  230
## 246 78.24900  7.830 postmonsoon 2018   7.92  587  375.68   0 211.19914   40
## 247 78.23489  3.800 postmonsoon 2018   7.08 1728 1105.92   0 207.16958  300
## 248 78.27160 10.570 postmonsoon 2018   7.59  649  415.36   0 178.83200   70
## 249 78.56488  5.490 postmonsoon 2018   7.52 1778 1137.92   0 325.87792  300
## 250 77.77381  9.730 postmonsoon 2018   7.59 1919 1228.16   0 412.46140  260
```

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## 251 78.44900 16.240 postmonsoon 2018   7.40 1404  898.56   0 157.11973  260
## 252 78.11400  2.770 postmonsoon 2018   7.68 1506  963.84   0 318.56766  180
## 253 78.36162 17.520 postmonsoon 2018   7.65 1161  743.04   0 256.24781  140
## 254 78.11400  5.940 postmonsoon 2018   7.73 1356  867.84   0 336.81766  180
## 255 78.21820  3.660 postmonsoon 2018   7.63 1007  644.48   0 207.17416  160
## 256 78.14300 10.470 postmonsoon 2018   7.16 1475  944.00   0 286.11752  280
## 257 78.06863  3.950 postmonsoon 2018   7.60 1339  856.96   0 381.41813  150
## 258 77.99100 14.000 postmonsoon 2018   7.52 1778 1137.92   0 325.87792  300
## 259 77.85750 12.360 postmonsoon 2018   7.81 1249  799.36   0 307.19948  200
## 260 78.42600  6.330 postmonsoon 2018   7.97 1174  751.36   0 398.95859   90
## 261 78.39600  3.980 postmonsoon 2018   7.24 1268  811.52   0 282.29853  170
## 262 78.38600 16.520 postmonsoon 2018   7.21 1549  991.36   0 251.43522  320
## 263 77.90300  6.830 postmonsoon 2018   7.70  813  520.32   0 341.36001   30
## 264 77.95400 13.270 postmonsoon 2018   7.75 1186  759.04   0 411.67240   90
## 265 79.18720  3.950 postmonsoon 2018   7.92 1552  993.28   0 200.00000  270
## 266 79.26094  9.340 postmonsoon 2018   8.14  763  488.32   0 130.00000  120
## 267 79.24920  3.980 postmonsoon 2018   7.03 1699 1087.36   0 120.00000  190
## 268 79.46000  3.660 postmonsoon 2018   7.92 1250  800.00   0 130.00000  230
## 269 79.39000  4.950 postmonsoon 2018   8.11 1210  774.40   0 150.00000  180
## 270 78.06400  9.360 postmonsoon 2018   8.55  580  371.20  60 178.92222   10
## 271 78.54250 10.180 postmonsoon 2018   7.53 1872 1198.08   0 320.78053  270
## 272 78.15400 22.510 postmonsoon 2018   8.47  900  576.00 100 187.51827   80
## 273 78.36800     NA postmonsoon 2018   8.50  463  296.32  60  54.79771   70
## 274 78.48000 12.790 postmonsoon 2018   7.90  955  611.20   0 362.19326   50
## 275 78.32938 14.130 postmonsoon 2018   7.59 1870 1196.80   0 148.31714  380
## 276 78.28790 12.300 postmonsoon 2018   7.56 2350 1504.00   0 190.48265  530
## 277 78.68788 12.560 postmonsoon 2018   7.75 1262  807.68   0 312.81742  180
## 278 78.43900 24.070 postmonsoon 2018   7.90 1130  723.20   0 262.87384  150
## 279 78.73900 14.850 postmonsoon 2018   8.39 1943 1243.52  40 324.81205  340
## 280 78.59800 10.950 postmonsoon 2018   8.57  970  620.80  80 254.83335   60
## 281 78.29000 18.450 postmonsoon 2018   7.82 1184  757.76   0 315.35066  110
## 282 78.30100 12.860 postmonsoon 2018   8.34 1010  646.40  40 309.94446   80
## 283 78.40500 10.720 postmonsoon 2018   7.56 4860 3110.40   0 556.11093 1050
## 284 78.18462 37.680 postmonsoon 2018   7.72 1734 1109.76   0 316.75348  310
## 285 78.10400 20.520 postmonsoon 2018   8.27  473  302.72   0 190.78540   20
## 286 78.13100 18.700 postmonsoon 2018   7.89 1033  661.12   0 198.86043  170
## 287 78.41300 24.550 postmonsoon 2018   8.00  782  500.48   0 269.64001   30
## 288 78.67000 20.260 postmonsoon 2018   8.45 1090  697.60  40 317.51390   70
## 289 78.07297 22.980 postmonsoon 2018   6.96 1466  938.24   0 353.66885  210
## 290 78.36790 22.350 postmonsoon 2018   7.58 1961 1255.04   0 456.65101  270
## 291 78.15710 26.330 postmonsoon 2018   7.71  617  394.88   0 209.44358   60
## 292 78.21850 33.030 postmonsoon 2018   7.65  749  479.36   0 184.14232   80
## 293 78.31940 21.130 postmonsoon 2018   7.17  982  628.48   0 158.05393  220
## 294 77.86800 33.190 postmonsoon 2018   7.49 1486  951.04   0 407.31210  200
## 295 77.85150 23.530 postmonsoon 2018   7.33 1349  863.36   0 351.62646  180
## 296 78.18920 31.940 postmonsoon 2018   7.42 1860 1190.40   0 171.89998  400
## 297 78.20060 12.780 postmonsoon 2018   7.87 1066  682.24   0 265.82043  170
## 298 78.27017 11.680 postmonsoon 2018   7.50  619  396.16   0 167.32952   80
## 299 78.30030 28.030 postmonsoon 2018   7.32  920  588.80   0 226.23108  140
## 300 78.68470 18.640 postmonsoon 2018   8.15  617  394.88   0 139.89278   20
## 301 78.82420 20.700 postmonsoon 2018   8.10  882  564.48   0 198.40392  130
## 302 78.59720 19.140 postmonsoon 2018   8.43 1198  766.72  80 260.80606  130
## 303 78.63330 41.070 postmonsoon 2018   7.85  747  478.08   0 309.75548   30
## 304 78.99250 10.500 postmonsoon 2018  10.44  318  203.52  60  41.47786   30
```

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## 305 78.61810 26.700 postmonsoon 2018   8.34  572  366.08  60  78.74873   20
## 306 78.83750  7.020 postmonsoon 2018   8.22  861  551.04   0 197.88312  120
## 307 78.58660  8.550 postmonsoon 2018   8.53  383  245.12  40 109.83659   20
## 308 78.55257 12.670 postmonsoon 2018   7.19 1240  793.60   0 290.00000  150
## 309 78.95639 18.900 postmonsoon 2018   8.28 1009  645.76   0 180.00000  210
## 310 78.71890  9.950 postmonsoon 2018   8.12  726  464.64   0 270.00000   30
## 311 78.78308 15.180 postmonsoon 2018   8.14 2019 1292.16   0 410.00000  360
## 312 78.86389 24.950 postmonsoon 2018   7.89 1556  995.84   0 280.00000  230
## 313 78.61681 25.490 postmonsoon 2018   7.96  903  577.92   0 220.00000  130
## 314 79.62284 16.450 postmonsoon 2018   8.09  990  633.60   0 370.01747   40
## 315 79.49697 10.920 postmonsoon 2018   8.14 1363  872.32   0 255.57473  260
## 316 79.71867  5.680 postmonsoon 2018   7.98 1019  652.16   0 372.07128   70
## 317 79.88532  8.160 postmonsoon 2018   7.86 1600 1024.00   0 260.79411  330
## 318 79.90452  6.090 postmonsoon 2018   7.88 1292  826.88   0 413.13963  130
## 319 79.69183  9.370 postmonsoon 2018   8.06  953  609.92   0 367.66160   50
## 320 79.59122  2.690 postmonsoon 2018   7.99 1544  988.16   0 284.92212  290
## 321 77.69600 43.170 postmonsoon 2018   7.44  610  390.40   0 152.80081   70
## 322 77.44400 16.630 postmonsoon 2018   7.64 1330  851.20   0 161.79251  250
## 323 77.71942 24.270 postmonsoon 2018   8.56  670  428.80  40 193.53573   60
## 324 77.77400 12.450 postmonsoon 2018   7.82  980  627.20   0 132.48735  230
## 325 77.83600 16.190 postmonsoon 2018   7.53 1371  877.44   0 211.52601  300
## 326 77.54150 12.170 postmonsoon 2018   7.89  660  422.40   0 223.72779   50
## 327 77.60110 15.580 postmonsoon 2018   7.66 1705 1091.20   0 412.18893  220
## 328 77.51100     NA postmonsoon 2018   7.87  670  428.80   0 232.61588   20
## 329 77.77100 23.720 postmonsoon 2018   9.18  345  220.80  40  40.77898   50
## 330 77.98300 11.760 postmonsoon 2018   8.86  595  380.80  80 185.33532   10
## 331 77.88000 25.150 postmonsoon 2018   8.22  610  390.40   0 165.85954   60
## 332 77.66000 19.460 postmonsoon 2018   7.65 1364  872.96   0 198.97014  280
## 333 77.95700 14.480 postmonsoon 2018   8.34  260  166.40  20  51.63016   20
## 334 77.59100  7.940 postmonsoon 2018   7.87 1483  949.12   0 245.63348  310
## 335 77.91400 19.770 postmonsoon 2018   8.31  450  288.00  20 118.04485   40
## 336 77.64000 19.150 postmonsoon 2018   8.21  370  236.80   0 129.16865   10
## 337 77.80600  8.800 postmonsoon 2018   7.98 1164  744.96   0 376.47377  120
## 338 78.04645  7.120 postmonsoon 2018   8.13 2820 1804.80   0 623.76993  460
## 339 78.13480  4.700 postmonsoon 2018   8.22 1388  888.32   0 379.66440  190
## 340 77.96025 12.430 postmonsoon 2018   7.71 1260  806.40   0 219.54876  250
## 341 78.10448 11.600 postmonsoon 2018   8.19 1970 1260.80   0 392.43439  320
## 342 78.02360  2.450 postmonsoon 2018   8.10 1215  777.60   0 172.65094  240
## 343 78.02510 10.000 postmonsoon 2018   7.94 2430 1555.20   0 494.72101  380
## 344 79.73800  4.450 postmonsoon 2018   8.29 3814 2440.96   0 340.00000  630
## 345 79.87220  3.650 postmonsoon 2018   8.00  462  295.68   0 130.00000   50
## 346 79.80770  5.590 postmonsoon 2018   8.02  425  272.00   0 130.00000   40
## 347 79.93000  3.050 postmonsoon 2018   8.04  340  217.60   0 130.00000   40
## 348 79.88750  5.150 postmonsoon 2018   8.29 1127  721.28   0 290.00000  120
## 349 79.80030  4.240 postmonsoon 2018   8.28 1485  950.40   0 340.00000  140
## 350 79.63740  4.480 postmonsoon 2018   8.28  722  462.08   0 210.00000   50
## 351 79.72399 16.100 postmonsoon 2018   8.19 1244  796.16   0 270.00000  170
## 352 79.54730  9.940 postmonsoon 2018   8.21 1381  883.84   0 180.00000  260
## 353 79.71130  4.400 postmonsoon 2018   8.25 1118  715.52   0 260.00000  170
## 354 79.57940  8.960 postmonsoon 2018   8.17 1394  892.16   0 310.00000  200
## 355 79.34500 13.700 postmonsoon 2018   7.66  717  458.88   0  80.00000  140
## 356 79.37690  7.620 postmonsoon 2018   7.59 1510  966.40   0 100.00000  240
## 357 79.55770 10.360 postmonsoon 2018   7.62 1128  721.92   0 120.00000  210
## 358 79.59690  6.570 postmonsoon 2018   7.42  750  480.00   0 290.00000   20
```

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## 359 79.51530  5.130 postmonsoon 2018   7.45  946  605.44   0 280.00000   90
## 360 79.59719  6.120 postmonsoon 2018   7.69 2315 1481.60   0 320.00000  340
## 361 79.60700  7.280 postmonsoon 2018   7.63  700  448.00   0 200.00000   80
## 362 79.01959 22.660 postmonsoon 2018   7.80 1780 1139.20   0 493.76870  250
## 363 78.81077  8.760 postmonsoon 2018   6.60 2850 1824.00   0 420.90329  580
## 364 78.80322  5.560 postmonsoon 2018   7.14 1812 1159.68   0 502.02495  170
## 365 79.33964  7.450 postmonsoon 2018   7.51 1610 1030.40   0 519.82860  120
## 366 78.96650 11.640 postmonsoon 2018   6.81 2110 1350.40   0 327.71913  390
## 367 78.93297 12.640 postmonsoon 2018   7.24 2010 1286.40   0 269.94653  480
## 368 78.99178 20.330 postmonsoon 2018   7.77  870  556.80   0 349.98572   30
## 369 79.09509 11.900 postmonsoon 2018   7.22 2280 1459.20   0 505.24849  370
## 370 78.86001 25.460 postmonsoon 2018   6.95 1950 1248.00   0 440.90441  220
## 371 78.85383  8.390 postmonsoon 2018   7.45 2330 1491.20   0 519.81196  270
## 372 78.95229 21.210 postmonsoon 2018   7.26 1275  816.00   0 283.83454   90
## 373 79.14343  4.540 postmonsoon 2018   7.27 5440 3481.60   0 438.30625 1500
## 374 78.91164 30.150 postmonsoon 2018   7.20 1745 1116.80   0 384.58618  320
##         F        NO3    SO4         Na      K  Ca       Mg        T.H        SAR
## 1   0.440  42.276818  46.00  49.000000   4.00  48  38.896  279.93421  1.2733279
## 2   0.560 100.659091  68.00  42.000000   5.00  56  63.206  399.89309  0.9131655
## 3   0.660  41.471545  44.00  45.000000   2.00  24  38.896  219.93421  1.3192840
## 4   0.580  10.669864  35.00  27.000000   1.00  32  19.448  159.96711  0.9281552
## 5   2.560 128.843636 280.00 298.000000   5.00  56  92.378  519.84375  5.6826645
## 6   0.610  66.435000  43.00  73.000000  22.00  80  34.034  339.94243  1.7214418
## 7   0.650 193.265455 143.00 162.000000  13.00  88 126.412  739.78618  2.5896083
## 8   1.800 144.949091  70.00  85.000000   5.00  48  43.758  299.92599  2.1339490
## 9   0.530 134.883182 268.00 321.000000   6.00  48  97.240  519.83553  6.1213078
## 10  0.070  24.359500   4.00  10.200213   3.20  24   9.724   99.98355  0.4435240
## 11  0.590 159.444000  37.00 150.397577   1.90  64 106.964  599.81908  2.6699484
## 12  0.900  11.293950  13.00 190.992332   6.00  24  72.930  359.87664  4.3773499
## 13  0.710  70.864000  30.00 161.844078   8.00  24  68.068  339.88487  3.8168322
## 14  0.630 735.214000  18.00 235.124618  17.00  24 165.308  739.72039  3.7586897
## 15  1.030   7.972200   7.00  72.649805   0.77  40  43.758  279.92599  1.8879262
## 16  0.290 219.235500  11.00  22.593062  67.13  56  29.172  259.95066  0.6092588
## 17  0.730 210.377500  18.25 326.474464  19.50  32 155.584  719.73684  5.2909604
## 18  1.110   0.442900   8.00  29.889190  17.60  32  19.448  159.96711  1.0274743
## 19  0.470  95.223500  19.00  81.684774   9.80  72  34.034  319.94243  1.9855341
## 20  0.470   0.885800   2.25  39.997077  35.47  32   4.862   99.99178  1.7390749
## 21  0.260 141.728000  40.00  85.279758  16.10  64  43.758  339.92599  2.0110642
## 22  0.490 335.275300  41.75  68.179840   1.90 120 145.860  899.75329  0.9882491
## 23  0.980  57.355550  15.50 193.842638   7.90  40  29.172  219.95066  5.6827538
## 24  1.500  18.136755  18.00  73.116034   1.23  72  38.896  339.93421  1.7241989
## 25  0.270   3.422409  57.00  27.000000   2.00  24  19.448  139.96711  0.9922542
## 26  0.360  22.145000  14.00  16.000000   4.00  24  24.310  159.95888  0.5500320
## 27  0.140  29.996409  14.00  22.000000   3.00  32  14.586  139.97533  0.8084797
## 28  1.040 121.394864  88.00 156.000000   1.00  48  63.206  379.89309  3.4798944
## 29  1.560  37.425050  15.00  33.180596   1.17 104  19.448  339.96711  0.7824163
## 30  2.490  22.167145  24.00 164.484972   2.10  72   9.724  219.98355  4.8217344
## 31  1.080  58.684250  21.00 101.941839  16.74  96  29.172  359.95066  2.3361630
## 32  0.841  52.705100  33.00  94.402080   3.56 160  29.172  519.95066  1.8000006
## 33  0.794  10.164555  17.00  57.115909  22.89  56  24.310  239.95888  1.6031008
## 34  1.600 118.697200  43.00  80.160614   1.70 168  24.310  519.95888  1.5284411
## 35  1.230  38.310850  22.00 105.371817   9.90  80  43.758  379.92599  2.3504290
## 36  0.835  52.040750  18.00  78.697185   9.89  64  19.448  239.96711  2.2087955
## 37  0.550  39.458364 248.00 282.000000  10.00  88  77.792  539.86842  5.2768811
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## 38  0.910  63.213909  73.00  85.000000   6.00  24  48.620  259.91776  2.2923087
## 39  1.530  77.306182 148.00 135.000000   7.00  40  38.896  259.93421  3.6406105
## 40  0.270  45.095273  68.00  92.000000   1.00  24  19.448  139.96711  3.3810142
## 41  0.910  41.672864 124.00 107.000000   6.00  64  34.034  299.94243  2.6861916
## 42  0.490   5.234273  60.00  70.000000   2.00  40  19.448  179.96711  2.2686821
## 43  1.310  62.408636 119.00  30.000000   2.00  56  97.240  539.83553  0.5613874
## 44  1.150  62.811273 100.00 165.000000  14.00  48   5.000  120.00000  6.5488567
## 45  2.430  18.319955 115.00 202.000000  14.00  80  48.620  399.91776  4.3917558
## 46  2.890  22.748955  86.00 165.000000  45.00  24  34.034  199.94243  5.0734528
## 47  2.400  46.504500  41.00 200.000000  13.00  24  38.896  219.93421  5.8634843
## 48  1.220  43.686045 100.00  52.000000   4.00  64  29.172  279.95066  1.3512471
## 49  2.250  82.540455 122.00 112.000000   2.00  56  38.896  299.93421  2.8117531
## 50  0.710  62.811273 115.00 114.000000   4.00  56  58.344  379.90132  2.5429722
## 51  1.550  24.762136  44.00  61.000000   8.00  16  29.172  159.95066  2.0970510
## 52  0.650 177.160000 152.00 188.000000   8.00  80  58.344  439.90132  3.8971972
## 53  0.810  72.877182  85.00 114.000000   6.00  48  34.034  259.94243  3.0742446
## 54  0.370  46.303182  90.00 133.000000   7.00  48  34.034  259.94243  3.5866187
## 55  1.210   5.435591  27.00  42.000000   2.00   8  19.448   99.96711  1.8263874
## 56  1.360  43.082091 105.00 136.000000   3.00  56  53.482  359.90954  3.1168392
## 57  0.200  26.574000 171.00 214.000000  12.00  80  63.206  459.89309  4.3386787
## 58  0.650   1.062960 136.00 714.800195   5.90  32   4.862   99.99178 31.0795473
## 59  2.520 149.921650  32.00  92.842483   6.60  56 160.446  799.72862  1.4274062
## 60  1.040  21.812825  95.00 196.202916   3.30 112  87.516  639.85197  3.3723906
## 61  0.450  68.206600 110.00 218.734442   3.30 120 165.308  979.72039  3.0383532
## 62  0.616  77.950400  18.00  44.226350   1.89 184  24.310  559.95888  0.8125970
## 63  0.719 134.641600  40.00 568.330562   6.60  24  24.310  159.95888 19.5375002
## 64  0.460 183.139150  30.00 100.022063   1.53 104  38.896  419.93421  2.1221562
## 65  0.950  46.504500  10.00  24.832167   0.37  56  24.310  239.95888  0.6969769
## 66  3.080 153.907750  24.00 106.235842   1.56  48 116.688  599.80263  1.8859885
## 67  0.880 154.572100 162.00 589.274019  51.60  32  68.068  359.88487 13.5054066
## 68  0.990 126.005050 176.00 409.529550  12.70  80 131.274  739.77796  6.5464629
## 69  4.900 108.510500 138.25 279.757863   2.20  40  34.034  239.94243  7.8523733
## 70  1.160  92.566100  21.00  87.948701   8.57 120  63.206  559.89309  1.6160286
## 71  1.060  65.106300  31.75  75.484340   1.63  56  38.896  299.93421  1.8950297
## 72  1.120  80.386350  12.25  33.460760   1.69  80  63.206  459.89309  0.6783901
## 73  1.050  77.507500  23.25  79.921256   4.17 144  29.172  479.95066  1.5861205
## 74  1.670  70.421100  16.50 107.390216   3.93  88  34.034  359.94243  2.4610495
## 75  1.740  12.246185  12.75  70.546454   1.28  40  58.344  339.90132  1.6636843
## 76  1.620  52.970840  12.25  80.469293   2.00  64  38.896  319.93421  1.9560142
## 77  2.980 143.942500  90.00 409.173834 190.50 112  97.240  679.83553  6.8230427
## 78  2.010  34.546200   6.25  42.270748   2.53  80   4.862  219.99178  1.2391072
## 79  2.800  33.881850  15.50  77.921514   2.20  88  19.448  299.96711  1.9561076
## 80  1.340  81.936500  15.00 106.148134   3.44  88  38.896  379.93421  2.3677199
## 81  0.970   5.602685   6.00  19.471949   1.02  64  14.586  219.97533  0.5708140
## 82  0.560  50.933500   9.00  45.933960   4.37  72  14.586  239.97533  1.2892073
## 83  1.500  17.250955   9.25  51.248987   2.63  72  43.758  359.92599  1.1744941
## 84  1.500  14.460685  14.25  65.565549   1.88  88  19.448  299.96711  1.6459288
## 85  0.600  15.169325   7.75  37.772479   0.48  64  19.448  239.96711  1.0601609
## 86  1.370   8.636550  10.00  47.256179   2.53  56  24.310  239.95888  1.3263629
## 87  1.100  39.196650   1.50  65.102180   2.21  80  34.034  339.94243  1.5352002
## 88  1.700  35.432000  11.50  27.658154   2.26  80   9.724  239.98355  0.7762554
## 89  0.980 106.738900  22.00  52.254417   1.24  80  48.620  399.91776  1.1360824
## 90  0.290  31.003000  32.00  57.000000   3.00  16  19.448  119.96711  2.2626424
## 91  1.040  31.405636  51.00  89.000000   5.00  32  29.172  199.95066  2.7365334
```

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## 92  0.740  45.497909  56.00  75.000000   4.00  24  29.172  179.95066  2.4308419
## 93  1.280 142.331954  66.00 114.000000   2.00  32  34.034  219.94243  3.3421236
## 94  0.870  20.735773  32.00  44.000000   4.00  16  14.586   99.97533  1.9132795
## 95  0.660 221.450000  42.00 129.479393   4.70  48 199.342  939.66283  1.8364825
## 96  1.140  62.006000  21.00 100.315658  11.00  40  43.758  279.92599  2.6068694
## 97  0.830  86.365500  14.00  84.859901   8.00 104   4.862  279.99178  2.2049667
## 98  1.100 243.595000  44.00 168.625753   8.80 184 106.964  899.81908  2.4440972
## 99  2.030  12.401200  12.00  94.368252   5.00  56  48.620  339.91776  2.2254157
## 100 1.180  66.435000  24.00 125.787081   8.90  24  92.378  439.84375  2.6077082
## 101 1.180  57.577000  20.00  60.610689   3.00  72  58.344  419.90132  1.2860201
## 102 1.120  93.009000  19.00  35.722793   2.00 112  38.896  439.93421  0.7404977
## 103 1.090 110.725000  18.00  48.392483   6.00  72  58.344  419.90132  1.0267778
## 104 0.880  27.459800  11.00  40.709858   2.00  24  48.620  259.91776  1.0978772
## 105 1.520  35.432000  33.00 164.080769   3.50  56  87.516  499.85197  3.1908702
## 106 0.740  53.148000  25.00 102.301991   7.00  40 131.274  639.77796  1.7584969
## 107 0.700 263.525500  27.00 115.853411   1.00 112  43.758  459.92599  2.3487512
## 108 0.730  95.223500  21.00 103.516745   0.50  32  38.896  239.93421  2.9056057
## 109 1.190  64.220500  10.00  22.008074   0.50  32  87.516  439.85197  0.4562480
## 110 1.420  28.989818 125.00 200.000000   2.00  24  43.758  239.92599  5.6138850
## 111 1.040  53.349318  59.00  74.000000   2.00  24  24.310  159.95888  2.5438981
## 112 0.300  54.557227  32.00  84.000000   2.00  48  14.586  179.97533  2.7223563
## 113 0.420  25.366091  27.00  51.000000   1.00  24  29.172  179.95066  1.6529725
## 114 1.010  21.742364  30.00  68.000000   0.30  24  34.034  199.94243  2.0908775
## 115 0.790  16.306773  30.00  55.000000  15.00  32  43.758  239.92599  1.5438184
## 116 2.940  82.540455 197.00 249.000000   2.00  56  58.344  379.90132  5.5543867
## 117 3.760   6.844818  56.00 141.000000   2.00  40  68.068  379.88487  3.1453232
## 118 2.850  64.421818 103.00  92.000000   1.00  40  63.206  359.89309  2.1084982
## 119 2.110  68.448182 127.00  59.000000   3.00  56  82.654  479.86020  1.1710267
## 120 4.240  70.461364 171.00 103.000000   1.00  16  68.068  319.88487  2.5038744
## 121 2.060  82.540455 177.00 306.000000   9.00  32  43.758  259.92599  8.2521809
## 122 0.110  22.547636  31.00  22.000000   1.00   8   9.724   59.98355  1.2350335
## 123 1.170 102.672273 143.00 166.000000   2.00  64  87.516  519.85197  3.1654860
## 124 0.190   1.993050  12.00  35.935653   2.25  40   4.862  119.99178  1.4263364
## 125 0.520   1.107250  10.00  63.723426   2.50  32  24.310  179.95888  2.0653071
## 126 0.680   7.086400  18.00  71.009843   3.69  48  19.448  199.96711  2.1832901
## 127 0.760   1.993050  14.00  53.765489   3.30  40   9.724  139.98355  1.9757740
## 128 2.240  14.615700  50.00 274.731713   2.40  48  63.206  379.89309  6.1284445
## 129 0.580 188.232500  35.00  99.515657   3.55  80  87.516  559.85197  1.8286348
## 130 1.380 133.755800  38.00  64.666711   1.90 120  97.240  699.83553  1.0628083
## 131 0.650  93.673350  25.00 119.966571   2.47 104  53.482  479.90954  2.3809634
## 132 1.250  39.861000  14.00 156.565310   8.80  48  34.034  259.94243  4.2221058
## 133 1.260 108.067600  25.00 174.663951  29.50  64  87.516  519.85197  3.3307006
## 134 1.220 107.624700  29.00 263.942572   2.50  56  68.068  419.88487  5.6003671
## 135 0.690 188.232500  21.00 119.480265   1.78  56 106.964  579.81908  2.1573574
## 136 0.290  21.339727  40.00  52.000000   4.00  32  43.758  259.92599  1.4023314
## 137 0.740  12.280409  38.00  84.000000   1.00  40  24.310  199.95888  2.5827424
## 138 0.920   3.019773 327.00 576.000000   4.00  16  43.758  219.92599 16.8871505
## 139 0.260  18.521273 205.00 174.000000   1.00  48  34.034  259.94243  4.6922681
## 140 0.400  43.484727  42.00  40.000000   6.00  48  29.172  239.95066  1.1227193
## 141 0.390   2.818455  32.00  36.000000   2.00  48  34.034  259.94243  0.9708141
## 142 2.290  14.172800   6.00  92.852926   2.50  40  24.310  199.95888  2.8549428
## 143 0.900  20.594850  14.00  65.522291   1.81  64  29.172  279.95066  1.7026308
## 144 1.020  17.494550  13.00  95.486005   2.31  56  48.620  339.91776  2.2517748
## 145 0.880  19.930500  10.00  56.940640   1.80  48  38.896  279.93421  1.4796756
```

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## 146 0.930 101.867000  21.00 105.219056   2.85  72  77.792  499.86842  2.0461559
## 147 1.210 143.942500  34.00 201.693798   5.50  96  87.516  599.85197  3.5804916
## 148 1.160  26.574000  24.00 100.926449   1.93  64  72.930  459.87664  2.0462396
## 149 0.980  29.895750  19.00  74.574955  13.50  72  19.448  259.96711  2.0109717
## 150 1.730  20.151950  16.00  72.735480   0.85  48  34.034  259.94243  1.9614619
## 151 1.140 232.522500  42.00 305.935916   3.30 160  87.516  759.85197  4.8254535
## 152 0.750 155.015000  29.00 119.758070   4.20 160  97.240  799.83553  1.8410967
## 153 0.630 201.519500  28.00 138.425297   6.50  96  77.792  559.86842  2.5435755
## 154 1.340  24.802400  10.00  63.581114   1.87  48  24.310  219.95888  1.8639298
## 155 0.750 155.015000  18.00  91.930250   1.44  48  82.654  459.86020  1.8638789
## 156 1.570  13.729900   6.00  25.347860   1.30  32   9.724  119.98355  1.0061265
## 157 0.320 186.018000  36.00 169.458047   5.00 264 106.964 1099.81908  2.2216403
## 158 0.570   2.878850   8.00  22.085243   3.85  32  14.586  139.97533  0.8116123
## 159 0.860  37.646500  13.00  44.800657   0.95  48  34.034  259.94243  1.2081419
## 160 0.570   2.435950   8.00  21.837395   3.87  40   9.724  139.98355  0.8024805
## 161 3.600   9.079450  12.00  80.398485   3.60  72  19.448  259.96711  2.1680077
## 162 1.780  12.622650  19.00 158.946767   1.90  40  24.310  199.95888  4.8871258
## 163 1.280  54.919600  31.00 189.932159   2.70 192  58.344  719.90132  3.0777560
## 164 0.420   2.214500   6.00  19.801302   3.94  40  14.586  159.97533  0.6806744
## 165 2.460 143.056700  28.00  99.846156   4.17 200  29.172  619.95066  1.7435120
## 166 1.050  50.712050  18.00 105.544785   1.05  88  19.448  299.96711  2.6495500
## 167 0.920  38.089400   9.00 151.726577   2.20  56  58.344  379.90132  3.3845304
## 168 0.070  79.355802  10.00  19.000000   1.00  16  14.586   79.97533  0.9237357
## 169 0.160   9.808020   8.00  33.000000   1.00  24   9.724   99.98355  1.4349006
## 170 1.300  10.699659  84.00 223.000000   0.50  40  58.344  339.90132  5.2589689
## 171 1.040  45.473550 121.00 257.000000  11.00  40  34.034  239.94243  7.2135950
## 172 0.270 101.202650  18.25  69.394787  18.77  80  38.896  359.93421  1.5903307
## 173 1.260  73.521400  13.50  73.426771  12.00 152  58.344  619.90132  1.2822282
## 174 1.060 137.520450  20.50  82.904979   2.28 120 126.412  819.78618  1.2589326
## 175 2.400 223.885950  18.25  98.973333   4.20 104 136.136  819.76974  1.5029496
## 176 1.830  58.241350  12.50  84.124456   1.67  88  82.654  559.86020  1.5458048
## 177 1.190  84.151000  25.00 240.935543   0.90 136 126.412  859.78618  3.5725458
## 178 2.890  52.262200  15.75 135.379565   1.40  48  58.344  359.90132  3.1026555
## 179 1.500 108.731950  19.75 130.537583   0.22 112  58.344  519.90132  2.4891282
## 180 0.790 256.660550  38.25 243.814487  15.30 120 145.860  899.75329  3.5340277
## 181 0.560 104.524400  13.75  13.341072   1.14 112  68.068  559.88487  0.2451396
## 182 0.760  85.479700  10.75  21.714247   2.27  72 102.102  599.82730  0.3854817
## 183 0.881 664.350000  43.75 218.964342   6.20 280 170.170 1399.71217  2.5446391
## 184 1.590  13.464160  23.00  77.896017   1.41  56  48.620  339.91776  1.8369633
## 185 4.560 143.056700  22.00 375.847971   3.10   8   5.000   40.00000 25.8377313
## 186 0.350   0.885800  12.00  33.757489   2.95  48   4.862  139.99178  1.2404836
## 187 0.540  34.878375 102.00 115.116712   0.52 160  58.344  639.90132  1.9785819
## 188 0.820  39.196650  39.00 114.607353   1.94 104  48.620  459.91776  2.3235100
## 189 1.440  48.719000  31.00 175.856910   1.50 152  38.896  539.93421  3.2904946
## 190 3.480 284.341800  41.00 483.784557   4.70  24  38.896  219.93421 14.1833157
## 191 3.130  29.674300  18.00 289.611055   2.10  16  14.586   99.97533 12.5933385
## 192 1.840  94.559150  24.00 102.959453   2.80  56  53.482  359.90954  2.3596181
## 193 1.910  58.684250  19.00 112.037713   2.23  32  63.206  339.89309  2.6421972
## 194 1.010 198.197750  20.00  94.438897   1.75  80  82.654  539.86020  1.7671866
## 195 1.130 133.755800  11.00  23.387534   3.79  72  43.758  359.92599  0.5359817
## 196 2.640  14.172800  14.00 152.490812   3.70   8   4.862   39.99178 10.4840841
## 197 3.760 134.641600  45.00 696.971562  52.50  24  24.310  159.95888 23.9597919
## 198 0.470   7.529300  35.00  57.936825   0.61 176  14.586  499.97533  1.1265554
## 199 0.350   1.660875  13.00  37.617583   2.55  40   4.862  119.99178  1.4930945
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## 200 0.780 558.054000  40.00 219.672192  36.20 208  82.654  859.86020  3.2571167
## 201 0.970  24.580950  29.00  96.024470   2.96 104  43.758  439.92599  1.9905096
## 202 0.410  20.284820  27.00  98.935726   3.28 264 131.274 1199.77796  1.2418664
## 203 1.690  37.956530  23.00 332.972531   3.60 144  63.206  619.89309  5.8146312
## 204 3.300  77.064600  25.00  94.199458   1.48 112  43.758  459.92599  1.9097503
## 205 2.360   2.657400  18.00 216.755635   3.80  32  48.620  279.91776  5.6328389
## 206 0.717 106.296000  27.00 176.283339   7.40 176  34.034  579.94243  3.1826654
## 207 1.290  25.001705  17.00 150.527409   4.20 104  29.172  379.95066  3.3575628
## 208 0.680  45.840150  34.00  97.782308   4.35 208  19.448  599.96711  1.7356763
## 209 1.180   9.965250  24.00 247.049322  12.00  64  43.758  339.92599  5.8259083
## 210 0.880  58.905700  33.00 143.723809   8.10 104  24.310  359.95888  3.2936272
## 211 0.369   2.546675  19.00  37.388508   3.66  40  14.586  159.97533  1.2852387
## 212 0.640  60.898750  20.00  77.829667   4.10  56  19.448  219.96711  2.2815945
## 213 1.390  12.224040  43.00 239.817237   4.00 144  63.206  619.89309  4.1878793
## 214 3.920  46.504500  20.00  37.408022   5.70  64  38.896  319.93421  0.9092987
## 215 1.780 117.589950  41.00 374.300625  36.30  48   9.724  159.98355 12.8663407
## 216 0.570 217.906800  25.00 109.741994   5.94 160  53.482  619.90954  1.9163766
## 217 2.710   3.631780  15.00 104.575608   1.29  16  19.448  119.96711  4.1511791
## 218 1.600  96.773650  17.00 284.142092   3.40  88  87.516  579.85197  5.1303757
## 219 1.070   9.079450  22.00  87.131082   9.56  96  53.482  459.90954  1.7664814
## 220 1.010 420.755000 134.00 366.656325 197.50 184 228.514 1399.61349  4.2611546
## 221 0.710 376.465000  38.00  71.861061   4.14 184 126.412  979.78618  0.9981599
## 222 0.830  83.043750  15.00  58.307052   2.79 120  48.620  499.91776  1.1338196
## 223 0.870   2.878850  22.00 101.970209   2.32  56  24.310  239.95888  2.8620489
## 224 2.040  14.837150   6.00  83.442126   1.98  72  19.448  259.96711  2.2500819
## 225 2.020  29.231400   8.00 150.762024   2.50  16  53.482  259.90954  4.0658655
## 226 0.750 192.882950  26.00 180.045518   7.20  96  53.482  459.90954  3.6502135
## 227 1.110 144.163950  31.00 111.691164   2.61  64  97.240  559.83553  2.0523941
## 228 1.350  42.075500  20.00 215.323293   0.36  32  97.240  479.83553  4.2738274
## 229 0.560  55.362500  18.00 100.139680   4.41  56  29.172  259.95066  2.7004299
## 230 1.430 310.030000  50.00 422.936174   6.50 104 140.998  839.76151  6.3455462
## 231 1.270  32.210909  47.00  53.000000   3.00  32  38.896  239.93421  1.4876540
## 232 0.480  46.101864  67.00  61.000000   2.00  32  38.896  239.93421  1.7122056
## 233 0.640  44.290000  35.00  59.000000   2.00  24  34.034  199.94243  1.8141437
## 234 1.050  27.177955 109.00  87.000000   5.00  32  53.482  299.90954  2.1842195
## 235 0.230  34.425409  72.00  63.000000   1.00  24  29.172  179.95066  2.0419072
## 236 0.340  27.580591  44.00  57.000000   3.00  24  14.586  119.97533  2.2625649
## 237 0.670   7.650091  16.00  41.000000   3.00  16  24.310  139.95888  1.5068006
## 238 0.660  43.887364  73.00  69.000000   2.00  32  34.034  219.94243  2.0228643
## 239 0.310   2.617136  39.00  43.000000   2.00  16  14.586   99.97533  1.8697959
## 240 1.260  32.412227  45.00  60.000000   2.00  24  29.172  179.95066  1.9446735
## 241 0.170 182.796909 112.00 148.000000   3.00  40  63.206  359.89309  3.3919319
## 242 1.100 209.270250  22.00  79.852936   3.14  96  58.344  479.90132  1.5848460
## 243 0.830  78.836200  23.00 147.496188   5.30  96 160.446  899.72862  2.1379483
## 244 0.964 162.544300  30.00 171.512674   3.50 176  29.172  559.95066  3.1513272
## 245 1.240   8.437245  20.00  87.666905   1.46  80  48.620  399.91776  1.9059982
## 246 1.000  12.976970  12.00  34.053802   1.90  64  14.586  219.97533  0.9982763
## 247 0.699 240.494700  30.00  95.430799   4.11 192  43.758  659.92599  1.6151509
## 248 0.928  37.425050  13.00  38.987497   2.37  56  24.310  239.95888  1.0942816
## 249 1.080 122.683300  31.00 121.990758  41.27 152  48.620  579.91776  2.2024999
## 250 1.270  38.753750 134.00 215.738760   0.16  96  63.206  499.89309  4.1952879
## 251 0.852 189.118300  18.00  76.332404   2.46 152  38.896  539.93421  1.4282712
## 252 0.969 186.239450  22.00 107.175747   5.96 128  48.620  519.91776  2.0436257
## 253 0.928 125.562150  19.00  84.983504   1.27  96  38.896  399.93421  1.8476194
```

```
## 254 1.130  79.279100  16.00 111.543779   1.89  56  72.930  439.87664  2.3123420
## 255 1.090  56.912650  19.00 104.252996   1.51  80  19.448  279.96711  2.7089888
## 256 0.756  10.629600  39.00 157.598808   1.80 128  19.448  399.96711  3.4262019
## 257 1.200  65.992100  16.00  70.419892   2.54  72  82.654  519.86020  1.3428399
## 258 1.080 122.683300  31.00 121.990758  41.27 152  48.620  579.91776  2.2024999
## 259 1.740  17.937450  14.00  67.879697   2.59  64  77.792  479.86842  1.3472586
## 260 1.350  41.411150  21.00 104.673993   4.21  80  38.896  359.93421  2.3988296
## 261 0.913 105.188750  20.00  80.500111   4.24 104  48.620  459.91776  1.6320316
## 262 0.871  56.248300  18.00 109.548683   3.28 120  58.344  539.90132  2.0498502
## 263 1.480  14.239235   7.00  59.437222   1.11  48  38.896  279.93421  1.5445525
## 264 2.170  34.302605  20.00 154.875457   1.80  48  34.034  259.94243  4.1765355
## 265 0.740  31.003000 178.00 209.000000  28.00  40  48.620  299.91776  5.2470760
## 266 1.390  17.112045  79.00  84.000000  10.00  32  29.172  199.95066  2.5827956
## 267 4.430   1.811864 180.00 136.000000   1.00  40  43.758  279.92599  3.5341865
## 268 0.350  89.183955  96.00 182.000000   8.00  48  24.310  219.95888  5.3354715
## 269 1.490 110.926318  86.00 145.000000  21.00  48  29.172  239.95066  4.0698574
## 270 0.710  33.217500   7.00  14.131068   1.75  48  34.034  259.94243  0.3810733
## 271 0.650 239.166000  31.00 121.526542   1.00 168  63.206  679.89309  2.0263898
## 272 0.700  40.525350  12.00  32.064969   3.80  88  38.896  379.93421  0.7152350
## 273 0.580   2.657400  13.00  41.885995   2.17  40   9.724  139.98355  1.5392264
## 274 1.840  35.432000  11.00  82.637686   2.10  64  34.034  299.94243  2.0745856
## 275 0.620 272.383500  21.00 101.441780   3.10 152  82.654  719.86020  1.6438604
## 276 0.650 205.948500  57.00 257.813001   5.00 144  63.206  619.89309  4.5021357
## 277 0.970  42.296950  23.00  98.643705   2.30  96  43.758  419.92599  2.0929322
## 278 1.640  88.580000  13.00  76.981788   2.65  72  53.482  399.90954  1.6737064
## 279 4.770 101.867000  34.00 257.399680   1.40  32  82.654  419.86020  5.4616996
## 280 1.590  59.791500  12.00  94.314620   3.80  72  24.310  279.95888  2.4507785
## 281 0.990 108.510500  27.00  51.880613   4.10  88  63.206  479.89309  1.0296865
## 282 1.660  25.466750  16.00 141.469227   2.00  32  29.172  199.95066  4.3498344
## 283 1.720  44.290000 320.00 161.791506   2.30 488 213.928 2099.63816  1.5351671
## 284 2.050 106.296000  18.00  97.654862   2.75 128  82.654  659.86020  1.6528752
## 285 1.190   9.743800   7.00  25.957737   1.93  40  19.448  179.96711  0.8412836
## 286 0.580  70.864000  15.00  55.105412   1.54  64  58.344  399.90132  1.1980915
## 287 1.490  84.151000   7.00  33.363234   1.92  56  43.758  319.92599  0.8109901
## 288 2.110  77.507500  20.00  39.580123   3.51 104  48.620  459.91776  0.8024338
## 289 1.470  70.864000  18.00 118.300562   2.57  64  77.792  479.86842  2.3479989
## 290 0.530 139.513500  20.00 136.679812 213.70  72  58.344  419.90132  2.9000329
## 291 1.460   3.764650   8.00  31.343816   2.74  40  34.034  239.94243  0.8797727
## 292 1.750  70.864000  16.00  43.854474   2.32  56  34.034  279.94243  1.1395981
## 293 1.140  20.816300   1.00  88.212302   3.26  96  14.586  299.97533  2.2144126
## 294 1.250  34.103300  18.00 105.081856   1.66  80  77.792  519.86842  2.0037945
## 295 1.820  46.283050  24.00 155.583633   2.40  88  29.172  339.95066  3.6688346
## 296 1.790 192.661500  28.25 208.386001   5.00  88  63.206  479.89309  4.1358850
## 297 1.550  11.958300  12.00  89.491475   3.01  72  38.896  339.93421  2.1103593
## 298 1.740  14.172800  14.25  41.536560   1.81  72   9.724  219.98355  1.2176083
## 299 1.910  19.044700  15.75  74.608018   1.89 112   4.862  299.99178  1.8728500
## 300 0.970 154.793550  12.00  22.938349   1.37  72  19.448  259.96711  0.6185504
## 301 1.650  47.390300  16.00  74.854157   2.15  48  38.896  279.93421  1.9451814
## 302 1.480  60.898750  19.00 111.089953   2.80  56  53.482  359.90954  2.5459523
## 303 2.950  15.501500   5.00  52.417603   2.60  64  24.310  259.95888  1.4135038
## 304 1.040   3.986100  10.00  26.437789   2.45  24   9.724   99.98355  1.1495636
## 305 1.470 133.755800   8.00  20.882750   2.74  56  24.310  239.95888  0.5861266
## 306 1.500  50.047700  18.00  70.293504   1.61  48  38.896  279.93421  1.8266669
## 307 0.640   3.986100   8.00  13.962502   2.42  32  19.448  159.96711  0.4799766
```

```
## 308 1.290  56.369091  82.00 196.000000   9.00  56  14.586  199.97533  6.0261512
## 309 1.260  34.828045  85.00 179.000000   7.00  80   5.000  200.00000  5.5031354
## 310 1.110  64.421818  29.00 116.000000   5.00  32  14.586  139.97533  4.2628927
## 311 1.030  41.874182 108.00 199.000000  11.00  80 102.102  619.82730  3.4752807
## 312 1.770 102.672273 100.00 136.000000  34.00  80  58.344  439.90132  2.8192490
## 313 0.940  52.342727  79.00 132.000000   2.00  56  24.310  239.95888  3.7049102
## 314 1.150  65.992100  10.00  82.129109   1.14  80  29.172  319.95066  1.9963090
## 315 0.980  41.854050  18.00  85.406005   2.13 128  43.758  499.92599  1.6607632
## 316 1.610  28.788500  10.00  69.616651   2.59  88  34.034  359.94243  1.5953970
## 317 1.420  11.958300  54.00 168.188833   1.90 120  34.034  439.94243  3.4863533
## 318 1.020   9.522350  34.00 105.791275   1.99 104  38.896  419.93421  2.2445609
## 319 1.240  26.131100  12.00  36.053340   2.31  96  38.896  399.93421  0.7838327
## 320 1.110  60.234400  21.00 106.009029   7.31 136  48.620  539.91776  1.9835868
## 321 0.610  50.933500   9.00  48.819815   1.54  32  29.172  199.95066  1.5010905
## 322 0.920 152.800500  20.00 114.063218   2.96  72  58.344  419.90132  2.4201605
## 323 1.240   6.422050   8.00  81.557815   0.86  16  29.172  159.95066  2.8037851
## 324 1.130  15.722950  15.00  51.425024   2.50  64  53.482  379.90954  1.1471140
## 325 1.500  31.445900  18.00  67.528279   4.44  96  72.930  539.87664  1.2636028
## 326 1.370  31.224450   7.00  50.607503   2.60  48  24.310  219.95888  1.4835983
## 327 1.480 126.226500  19.00 100.430343   2.20 144  68.068  639.88487  1.7261804
## 328 1.040  77.507500   8.00  17.377146   0.50  56  38.896  299.93421  0.4362522
## 329 0.260   2.214500  17.00  43.880478  14.74   8   9.724   59.98355  2.4633573
## 330 0.830  14.837150   3.00  27.643297   0.33  56  24.310  239.95888  0.7758783
## 331 0.560  50.933500  10.00  21.415616   1.22  40  38.896  259.93421  0.5775253
## 332 0.820  84.151000  13.00  75.580333   3.64  72  82.654  519.86020  1.4412446
## 333 0.200  33.217500   2.00   5.076154   0.22  32   9.724  119.98355  0.2014866
## 334 2.080  44.290000  15.00 122.526132   2.10  64  77.792  479.86842  2.4318669
## 335 0.480  31.224450   3.00  21.542150   0.36  32  24.310  179.95888  0.6981915
## 336 1.700  44.290000   4.00  12.023272   0.57  48   9.724  159.98355  0.4132922
## 337 2.460   0.686650  28.75 123.060658   0.29  56  43.758  320.00000  2.9913459
## 338 1.830  88.600000  50.00 322.128483   3.20  24 160.446  720.00000  5.2205578
## 339 1.260   1.173950  37.00 173.718971   2.65  32  58.344  320.00000  4.2229059
## 340 0.469  27.554600  28.25 125.955575   2.00  72  43.758  360.00000  2.8865757
## 341 1.250 127.584000  27.50 224.302459   5.80  24 106.964  500.00000  4.3621418
## 342 0.560  69.772500  32.75  97.370564   1.55  80  48.620  400.00000  2.1169690
## 343 0.610 170.776500  33.25 273.351210  25.85  96  87.516  600.00000  4.8525623
## 344 0.420 287.281046 453.00 426.000000 132.00 112 136.136  839.76974  6.3914832
## 345 2.000  44.491318  36.00  44.000000   3.00  16  34.034  179.94243  1.4261265
## 346 1.110  34.828045  22.00  36.000000   2.00  16  29.172  159.95066  1.2376038
## 347 1.300  76.299591  34.00  67.000000   1.00  16  24.310  139.95888  2.4623327
## 348 2.380  69.253455  57.00 116.000000   7.00  32  58.344  319.90132  2.8198249
## 349 2.280 151.592591 111.00 193.000000   2.00  32  68.068  359.88487  4.4233131
## 350 1.790  42.478136  41.00  72.000000   5.00  24  34.034  199.94243  2.2138703
## 351 0.700  37.243864 123.00 134.000000  46.00  40  53.482  319.90954  3.2573421
## 352 0.430  47.511091 152.00 154.000000   8.00  64  58.344  399.90132  3.3482391
## 353 0.830   2.415818  81.00 128.000000   8.00  32  53.482  299.90954  3.2135643
## 354 0.770  47.108455 115.00 152.000000   2.00  72  58.344  419.90132  3.2250922
## 355 1.590  22.346318  90.00  61.000000   2.00  40  38.896  259.93421  1.6450166
## 356 0.680 130.856818 199.00 120.000000   9.00  88  63.206  479.89309  2.3816677
## 357 1.800  48.920318 106.00 111.000000   8.00  56  43.758  319.92599  2.6981767
## 358 4.970   5.636909  39.00  58.000000   7.00  24  43.758  239.92599  1.6280267
## 359 1.960  27.379273  75.00  75.000000   6.00  24  68.068  339.88487  1.7687543
## 360 0.100 134.883182 233.00 256.000000 102.00 112  43.758  459.92599  5.1900095
## 361 1.130  19.930500  45.00  61.000000   5.00  24  43.758  239.92599  1.7122349
```

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## 362 1.120   7.972200  18.00 204.088137  12.00  64  68.068  439.88487  4.2307797
## 363 0.800   7.307850  28.00 264.162585   4.00 216  77.792  859.86842  3.9167646
## 364 1.710   7.307850  29.00 142.784759  35.00 128  58.344  559.90132  2.6236039
## 365 0.490   6.422050  16.00 205.876123  20.00  56  48.620  339.91776  4.8550221
## 366 0.640   7.972200  23.00 135.289145   9.00 240  38.896  759.93421  2.1337676
## 367 1.900   0.664350  25.00 124.811255   3.00 184  68.068  739.88487  1.9950043
## 368 1.600  26.131100   7.00  35.946811   1.00  72  43.758  359.92599  0.8238079
## 369 2.200  21.259200  17.00 251.351585   4.00 112  77.792  599.86842  4.4619612
## 370 1.120  19.709050  17.00 148.257707   2.00 160  63.206  659.89309  2.5093004
## 371 1.800   1.993050  37.00 175.275418  28.00 120 111.826  759.81086  2.7646517
## 372 2.800  29.231400  11.00 147.248057   3.00  64  38.896  319.93421  3.5792448
## 373 0.780 167.194750  43.00 597.854463   6.00 424  92.378 1439.84375  6.8503058
## 374 3.180 121.797500  14.00 163.837039   4.00 152  34.034  519.94243  3.1239683
##     Classification RSC..meq....L Classification.1
## 1             C2S1  -1.198684211             P.S.
## 2             C3S1  -3.397861842             P.S.
## 3             C2S1  -0.398684211             P.S.
## 4             C2S1   0.000657895             P.S.
## 5             C4S2  -4.396875000             P.S.
## 6             C3S1   0.001151316             P.S.
## 7             C3S1  -7.995723684             P.S.
## 8             C3S1  -1.198519737             P.S.
## 9             C4S2  -1.996710526             P.S.
## 10            C2S1  -0.846885217             P.S.
## 11            C3S1  -7.838943540             P.S.
## 12            C3S1   3.746380368             U.S.
## 13            C3S1   0.401311253             P.S.
## 14            C4S1  -9.974771846             P.S.
## 15            C3S1   0.192104435             P.S.
## 16            C3S1  -2.914141488             P.S.
## 17            C4S2  -3.192181337             P.S.
## 18            C2S1   0.349816786             P.S.
## 19            C3S1  -1.433483162             P.S.
## 20            C2S1   1.646980071               MR
## 21            C3S1  -3.727793695             P.S.
## 22            C3S1 -13.832284580             P.S.
## 23            C3S2   3.457967525             U.S.
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## 29            C3S1  -1.299360911             P.S.
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## 31            C3S1   0.135571412             P.S.
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## 33            C3S1   0.702779753             P.S.
## 34            C3S1  -4.069323019             P.S.
## 35            C3S1   0.128095032             P.S.
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## 40            C2S1  -0.799342105             P.S.
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## 41          C3S1  -2.398848684          P.S.
## 42          C2S1  -0.799342105          P.S.
## 43          C3S1  -6.996710526          P.S.
## 44          C3S1   1.600000000            MR
## 45          C3S1   1.201644737          P.S.
## 46          C3S1   2.201151316            MR
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## 63          C4S4  10.883768300          U.S.
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## 66          C3S1  -5.985300790          P.S.
## 67          C4S3   4.321995404          U.S.
## 68          C4S2  -3.730803026          P.S.
## 69          C3S1   4.996379813          U.S.
## 70          C3S1  -3.829276909          P.S.
## 71          C3S1   0.017517975          P.S.
## 72          C3S1  -4.495517190          P.S.
## 73          C3S1  -4.618061875          P.S.
## 74          C3S1  -1.740947206          P.S.
## 75          C3S1   1.030809203          P.S.
## 76          C3S1   0.269266468          P.S.
## 77          C4S1  -2.556707626          P.S.
## 78          C2S1  -0.601634094          P.S.
## 79          C3S1   0.131749487          P.S.
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## 85          C2S1  -0.289382777          P.S.
## 86          C2S1   1.070687528          P.S.
## 87          C3S1  -0.788220504          P.S.
## 88          C2S1  -1.362730335          P.S.
## 89          C3S1  -2.900196130          P.S.
## 90          C2S1   0.800657895          P.S.
## 91          C2S1   0.400986842          P.S.
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## 94          C2S1   0.400493421          P.S.
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## 106         C3S1  -2.454185429          P.S.
## 107         C3S1  -4.544346076          P.S.
## 108         C3S1  -1.310201147          P.S.
## 109         C3S1  -1.031802885          P.S.
## 110         C3S1   3.601480263          U.S.
## 111         C2S1   0.000822368          P.S.
## 112         C2S1   1.000493421          P.S.
## 113         C2S1   0.400986842          P.S.
## 114         C2S1   0.801151316          P.S.
## 115         C2S1   1.001480263          P.S.
## 116         C3S1  -1.998026316          P.S.
## 117         C3S1   3.802302632          U.S.
## 118         C3S1  -1.197861842          P.S.
## 119         C3S1  -3.797203947          P.S.
## 120         C3S1  -1.797697368          P.S.
## 121         C3S2   1.001480263          P.S.
## 122         C1S1  -0.599671053          P.S.
## 123         C3S1  -4.797039474          P.S.
## 124         C2S1  -0.151817865          P.S.
## 125         C2S1   1.070892411          P.S.
## 126         C2S1  -0.269806782          P.S.
## 127         C2S1   0.866787839          P.S.
## 128         C3S2   3.290459800          U.S.
## 129         C3S1  -7.270733624          P.S.
## 130         C3S1 -10.292696420          P.S.
## 131         C3S1  -4.943259503          P.S.
## 132         C3S1   0.497377478          P.S.
## 133         C3S1  -4.156606318          P.S.
## 134         C3S1  -1.065254689          P.S.
## 135         C3S1  -7.872556440          P.S.
## 136         C3S1  -0.798519737          P.S.
## 137         C2S1   0.400822368          P.S.
## 138         C4S4   3.001480263          U.S.
## 139         C3S1  -1.798848684          P.S.
## 140         C2S1  -1.399013158          P.S.
## 141         C2S1  -0.798848684          P.S.
## 142         C3S1   2.741027251          U.S.
## 143         C3S1  -0.434993748          P.S.
## 144         C3S1   0.337581688          P.S.
## 145         C3S1  -1.834948766          P.S.
## 146         C3S1  -5.618946658          P.S.
## 147         C4S2  -5.814117227          P.S.
## 148         C3S1  -0.427206974          P.S.
```

```
## 149          C3S1  -2.258452531           P.S.
## 150          C3S1  -1.870300461           P.S.
## 151          C4S1  -8.443505351           P.S.
## 152          C3S1 -11.748256210           P.S.
## 153          C3S1  -7.017054433           P.S.
## 154          C2S1   0.933057450           P.S.
## 155          C3S1  -3.897338183           P.S.
## 156          C2S1  -0.127123313           P.S.
## 157          C4S1 -18.552989590           P.S.
## 158          C2S1  -0.076825506           P.S.
## 159          C2S1  -1.303888044           P.S.
## 160          C2S1  -0.361755018           P.S.
## 161          C3S1   1.607189842             MR
## 162          C3S1   2.758822852           U.S.
## 163          C4S1  -6.626937161           P.S.
## 164          C2S1  -0.127444553           P.S.
## 165          C3S1  -5.544478858           P.S.
## 166          C3S1   1.802661271             MR
## 167          C3S1  -0.071069954           P.S.
## 168          C1S1  -0.199506579           P.S.
## 169          C2S1   0.400328947           P.S.
## 170          C3S1   0.801973684           P.S.
## 171          C3S1   5.601151316           U.S.
## 172          C3S1  -2.957053844           P.S.
## 173          C3S1  -4.204556422           P.S.
## 174          C3S1  -8.403516839           P.S.
## 175          C3S1  -9.298577931           P.S.
## 176          C3S1  -1.460508979           P.S.
## 177          C4S1  -8.848373648           P.S.
## 178          C3S1   0.824988890           P.S.
## 179          C3S1  -3.570445587           P.S.
## 180          C4S1  -6.362558145           P.S.
## 181          C3S1  -3.852833157           P.S.
## 182          C3S1  -5.087894258           P.S.
## 183          C4S1 -20.177477030           P.S.
## 184          C3S1  -1.141967438           P.S.
## 185          C3S4  12.750008020           U.S.
## 186          C2S1   0.064847175           P.S.
## 187          C3S1  -6.764171099           P.S.
## 188          C3S1  -2.334056045           P.S.
## 189          C3S1  -3.137484509           P.S.
## 190          C4S4   6.466190054           U.S.
## 191          C3S3   9.245858823           U.S.
## 192          C3S1   0.598461833           P.S.
## 193          C3S1  -0.312326398           P.S.
## 194          C3S1  -4.834441317           P.S.
## 195          C3S1  -3.129176638           P.S.
## 196          C2S2   5.491410586           U.S.
## 197          C4S4  17.412601640           U.S.
## 198          C3S1  -2.794320260           P.S.
## 199          C2S1  -0.370101951           P.S.
## 200          C4S1 -12.312884710           P.S.
## 201          C3S1  -2.930480796           P.S.
## 202          C4S1 -18.780810080           P.S.
```

```
## 203          C4S2  -1.720581969           P.S.
## 204          C3S1  -3.534368137           P.S.
## 205          C3S1   4.009953358           U.S.
## 206          C3S1  -3.832487078           P.S.
## 207          C3S1  -0.309659931           P.S.
## 208          C3S1  -6.433213832           P.S.
## 209          C3S1   0.163789610           P.S.
## 210          C3S1  -1.092035556           P.S.
## 211          C2S1  -1.071174511           P.S.
## 212          C3S1  -0.604322695           P.S.
## 213          C4S2  -5.400240740           P.S.
## 214          C3S1  -0.120266670           P.S.
## 215          C3S3   4.741473134           U.S.
## 216          C3S1  -6.787015139           P.S.
## 217          C2S1   2.942454881           U.S.
## 218          C4S2  -2.076259964           P.S.
## 219          C3S1  -3.038126411           P.S.
## 220          C4S2 -16.345400830           P.S.
## 221          C4S1 -16.493166360           P.S.
## 222          C3S1  -6.909154175           P.S.
## 223          C3S1  -0.144050083           P.S.
## 224          C3S1   2.574456388           U.S.
## 225          C3S1   4.054666595           U.S.
## 226          C3S1  -5.851248110           P.S.
## 227          C3S1  -3.725293888           P.S.
## 228          C3S1   1.132061869           P.S.
## 229          C3S1  -0.376665055           P.S.
## 230          C4S2  -8.491465458           P.S.
## 231          C2S1  -0.598684211           P.S.
## 232          C2S1  -0.598684211           P.S.
## 233          C2S1   0.001151316           P.S.
## 234          C3S1  -1.398190789           P.S.
## 235          C2S1  -0.999013158           P.S.
## 236          C2S1  -0.799506579           P.S.
## 237          C2S1   0.800822368           P.S.
## 238          C2S1  -1.198848684           P.S.
## 239          C2S1   0.200493421           P.S.
## 240          C2S1   0.000986842           P.S.
## 241          C3S1  -3.597861842           P.S.
## 242          C3S1  -4.489670196           P.S.
## 243          C4S1  -8.942538729           P.S.
## 244          C3S1  -3.121239135           P.S.
## 245          C3S1  -3.424574971           P.S.
## 246          C2S1  -0.175523878           P.S.
## 247          C3S1  -9.055128052           P.S.
## 248          C2S1  -1.222537667           P.S.
## 249          C3S1  -5.080796912           P.S.
## 250          C3S1  -1.748633811           P.S.
## 251          C3S1  -7.656289512           P.S.
## 252          C3S1  -4.027002157           P.S.
## 253          C3S1  -2.873728091           P.S.
## 254          C3S1  -2.061179789           P.S.
## 255          C3S1  -1.455858921           P.S.
## 256          C3S1  -2.276991771           P.S.
```

```
## 257          C3S1  -2.768841438           P.S.
## 258          C3S1  -5.080796912           P.S.
## 259          C3S1  -3.453378726           P.S.
## 260          C3S1   0.780487581           P.S.
## 261          C3S1  -3.552384737           P.S.
## 262          C3S1  -5.769321852           P.S.
## 263          C3S1   1.228515910           P.S.
## 264          C3S1   3.034599297           U.S.
## 265          C3S1  -1.998355263           P.S.
## 266          C3S1  -1.399013158           P.S.
## 267          C3S1  -3.198519737           P.S.
## 268          C3S1  -1.799177632           P.S.
## 269          C3S1  -1.799013158           P.S.
## 270          C2S1  -0.420404199           P.S.
## 271          C3S1  -7.182251231           P.S.
## 272          C3S1  -1.848318809           P.S.
## 273          C2S1  -0.503716802           P.S.
## 274          C4S2   1.245016597           P.S.
## 275          C3S1 -11.430861150           P.S.
## 276          C4S1  -8.588208913           P.S.
## 277          C3S1  -2.142171393           P.S.
## 278          C3S1  -2.740713995           P.S.
## 279          C3S1  -1.100962895           P.S.
## 280          C3S1   1.097489277           P.S.
## 281          C3S1  -3.290848701           P.S.
## 282          C3S1   2.999876053           U.S.
## 283          C4S1 -30.870544640           P.S.
## 284          C3S1  -6.862134445           P.S.
## 285          C2S1   0.216365912           P.S.
## 286          C3S1  -4.020817694           P.S.
## 287          C3S1  -1.005719616           P.S.
## 288          C3S1  -2.048077203           P.S.
## 289          C3S1  -2.523991385           P.S.
## 290          C3S1   0.734993820           P.S.
## 291          C2S1  -0.609977014           P.S.
## 292          C2S1  -1.916002330           P.S.
## 293          C3S1  -2.838427915           P.S.
## 294          C3S1  -2.251126345           P.S.
## 295          C3S1   0.233516139           P.S.
## 296          C3S1  -6.159862215           P.S.
## 297          C3S1  -1.482275589           P.S.
## 298          C2S1  -1.053080651           P.S.
## 299          C3S1  -1.475213931           P.S.
## 300          C2S1  -2.401486469           P.S.
## 301          C3S1  -1.630605909           P.S.
## 302          C3S1  -0.382069631           P.S.
## 303          C2S1   0.995932013           P.S.
## 304          C2S1   0.029886211           P.S.
## 305          C2S1  -2.024202948           P.S.
## 306          C3S1  -1.641021822           P.S.
## 307          C2S1  -0.202610279           P.S.
## 308          C3S1   1.800493421             MR
## 309          C3S1  -0.400000000           P.S.
## 310          C2S1   2.600493421           U.S.
```

```
## 311          C3S1  -4.196546053           P.S.
## 312          C3S1  -3.198026316           P.S.
## 313          C3S1  -0.399177632           P.S.
## 314          C3S1   1.001336210           P.S.
## 315          C3S1  -4.887025039           P.S.
## 316          C3S1   0.242576995           P.S.
## 317          C3S1  -3.582966402           P.S.
## 318          C3S1  -0.135891623           P.S.
## 319          C3S1  -0.645452263           P.S.
## 320          C3S1  -5.099912825           P.S.
## 321          C2S1  -0.942997003           P.S.
## 322          C3S1  -5.162176102           P.S.
## 323          C2S1   1.471701370             MR
## 324          C3S1  -4.948443831           P.S.
## 325          C3S1  -6.567012639           P.S.
## 326          C2S1   0.075378125           P.S.
## 327          C3S1  -4.553918704           P.S.
## 328          C2S1  -1.346366670           P.S.
## 329          C2S1   0.415908514           P.S.
## 330          C2S1   0.507528758           P.S.
## 331          C2S1  -1.881493493           P.S.
## 332          C3S1  -6.417801232           P.S.
## 333          C2S1  -0.967067797           P.S.
## 334          C3S1  -4.684698918           P.S.
## 335          C2S1  -0.838280645           P.S.
## 336          C2S1  -0.616297996           P.S.
## 337          C3S1   1.130955747           P.S.
## 338          C4S1  -1.919173690           P.S.
## 339          C3S1   1.195261751           P.S.
## 340          C3S1  -2.807544523           P.S.
## 341          C3S1  -2.147693782           P.S.
## 342          C3S1  -4.545336439           P.S.
## 343          C4S1  -2.102619292           P.S.
## 344          C4S2  -9.995394737           P.S.
## 345          C2S1  -0.998848684           P.S.
## 346          C2S1  -0.599013158           P.S.
## 347          C2S1  -0.199177632           P.S.
## 348          C3S1  -0.598026316           P.S.
## 349          C3S1  -0.397697368           P.S.
## 350          C2S1   0.201151316           P.S.
## 351          C3S1  -0.998190789           P.S.
## 352          C3S1  -4.398026316           P.S.
## 353          C3S1  -0.798190789           P.S.
## 354          C3S1  -2.198026316           P.S.
## 355          C2S1  -3.598684211           P.S.
## 356          C3S1  -7.597861842           P.S.
## 357          C3S1  -3.998519737           P.S.
## 358          C3S1   1.001480263           P.S.
## 359          C3S1  -1.197697368           P.S.
## 360          C4S2  -2.798519737           P.S.
## 361          C2S1  -0.798519737           P.S.
## 362          C3S1   1.077676655           P.S.
## 363          C4S1  -8.779302592           P.S.
## 364          C3S1  -1.157527218           P.S.
```

```
## 365           C3S2   3.598216649            U.S.
## 366           C3S1  -8.644301687            P.S.
## 367           C3S1  -9.398766863            P.S.
## 368           C3S1  -0.198805330            P.S.
## 369           C4S2  -1.892398676            P.S.
## 370           C3S1  -4.379773654            P.S.
## 371           C4S1  -4.799977922            P.S.
## 372           C3S1  -0.721993372            P.S.
## 373           C4S2 -20.030749910            P.S.
## 374           C3S1  -2.707125173            P.S.
```

```
#The below functions gives statistics such as mean,median,min,max etc., for the variable 'lat_gis'.
summary(my_file)
```

```
##       sno           district           mandal            village
##  Min.   :  1.00   Length:374         Length:374         Length:374
##  1st Qu.: 94.25   Class :character   Class :character   Class :character
##  Median :189.50   Mode  :character   Mode  :character   Mode  :character
##  Mean   :189.07
##  3rd Qu.:283.75
##  Max.   :379.00
##
##     lat_gis         long_gis          gwl            season
##  Min.   :15.90   Min.   :77.44   Min.   : 0.570   Length:374
##  1st Qu.:17.13   1st Qu.:78.19   1st Qu.: 5.115   Class :character
##  Median :17.63   Median :78.58   Median :10.000   Mode  :character
##  Mean   :17.70   Mean   :78.79   Mean   :12.074
##  3rd Qu.:18.35   3rd Qu.:79.34   3rd Qu.:16.575
##  Max.   :19.73   Max.   :80.92   Max.   :43.170
##                                  NA's   :3
##        pH              E.C              TDS              CO3
##  Min.   : 6.600   Min.   : 212.0   Min.   : 135.7   Min.   :  0.000
##  1st Qu.: 7.580   1st Qu.: 766.2   1st Qu.: 490.4   1st Qu.:  0.000
##  Median : 7.920   Median :1173.5   Median : 751.0   Median :  0.000
##  Mean   : 7.893   Mean   :1310.6   Mean   : 838.8   Mean   :  7.059
##  3rd Qu.: 8.217   3rd Qu.:1666.2   3rd Qu.:1066.4   3rd Qu.:  0.000
##  Max.   :10.440   Max.   :5440.0   Max.   :3481.6   Max.   :100.000
##
##       HCO3             Cl              F               NO3
##  Min.   : 30.0   Min.   :  10   Min.   :0.0700   Min.   :  0.4429
##  1st Qu.:186.5   1st Qu.:  60   1st Qu.:0.6923   1st Qu.: 20.6301
##  Median :263.8   Median : 140   Median :1.0600   Median : 46.4038
##  Mean   :277.7   Mean   : 187   Mean   :1.2376   Mean   : 73.7667
##  3rd Qu.:353.5   3rd Qu.: 260   3rd Qu.:1.5450   3rd Qu.:101.0668
##  Max.   :970.6   Max.   :1500   Max.   :4.9700   Max.   :735.2140
##
##       SO4               Na               K                Ca
##  Min.   :  1.00   Min.   :  5.076   Min.   :  0.160   Min.   :  8.00
##  1st Qu.: 15.00   1st Qu.: 58.077   1st Qu.:  1.933   1st Qu.: 40.00
##  Median : 24.00   Median : 96.698   Median :  3.000   Median : 56.00
##  Mean   : 44.07   Mean   :122.496   Mean   :  7.832   Mean   : 73.54
##  3rd Qu.: 43.56   3rd Qu.:153.623   3rd Qu.:  5.990   3rd Qu.: 96.00
##  Max.   :453.00   Max.   :714.800   Max.   :213.700   Max.   :488.00
##
```

```
##        Mg               T.H               SAR          Classification
##  Min.   :  4.862   Min.   :  39.99   Min.   : 0.2015   Length:374
##  1st Qu.: 24.310   1st Qu.: 239.94   1st Qu.: 1.4951   Class :character
##  Median : 43.758   Median : 339.93   Median : 2.1339   Mode  :character
##  Mean   : 50.480   Mean   : 391.20   Mean   : 2.8996
##  3rd Qu.: 63.206   3rd Qu.: 499.92   3rd Qu.: 3.3393
##  Max.   :228.514   Max.   :2099.64   Max.   :31.0795
##
##  RSC..meq....L       Classification.1
##  Min.   :-30.87054   Length:374
##  1st Qu.: -3.82171   Class :character
##  Median : -1.26095   Mode  :character
##  Mean   : -2.12925
##  3rd Qu.:  0.01452
##  Max.   : 17.41260
##
```

```
mean(my_file$lat_gis)
```

```
## [1] 17.7012
```

```
median(my_file$lat_gis)
```

```
## [1] 17.63223
```

```
sd(my_file$lat_gis)
```

```
## [1] 0.852885
```

```
var(my_file$lat_gis)
```

```
## [1] 0.7274128
```

```
min(my_file$lat_gis)
```

```
## [1] 15.89644
```

```
max(my_file$lat_gis)
```

```
## [1] 19.73055
```

```
str(my_file$lat_gis)
```

```
##  num [1:374] 19.7 19.5 19.5 19.7 19.5 ...
```

#Gives frequency counts for the categorical variables mandal,village.

```r
table(my_file$mandal)
```

```
##
##          Adilabad    Advidevulapally             Alair            Alampur
##                 1                  1                 1                  1
##             Alwal            Amangal          Amarabad          Ameerpet
##                 1                  1                 1                  1
##            Andole   Annapureddypalli           Anumula            Armoor
##                 1                  1                 4                  1
##         Arvapally        Ashwapuram          Asifabad         Asifnagar
##                 2                  1                 1                  2
##           Atmakur          Atmakuru     B.Pochampalli       Bachannapet
##                 1                  1                 1                  1
##         Balanagar            Balmur       Bandlaguda         Bansawada
##                 1                  1                 1                  1
##         Bantwaram       Basheerabad       Bazarhatnur       Bellampally
##                 1                  1                 1                  1
##       Bhadrachalam Bheemadevarapallly          Bheemgal          Bhiknoor
##                 1                  1                 1                  2
##         Bhoothpur           Bibipet         BICHKUNDA       Bijinepalli
##                 1                  1                 1                  1
##            Bodhan          Bomraspet           Bonakal         Burgampad
##                 1                  1                 1                  1
##          CC Kunta         Chandampet      Chandrugonda           Chandur
##                 3                  1                 1                  4
##         Charminar          Chegunta      Chennaraopet          Chennur
##                 1                  1                 1                  1
##          Chevella          Chityala          Chivemla       Choppadandi
##                 2                  1                 1                  1
##        Choutuppal          Darpally       Devarakonda       Devarkadara
##                 1                  1                 2                  1
##       Devaruppula      Dhantalapally        Dharmapuri         Dharmaram
##                 1                  1                 1                  1
##       Dharmasagar           Dharoor         Dichpally              Doma
##                 1                  3                 1                  1
##         Domakonda          Dornakal       Doulathabad          Duggondi
##                 1                  1                 1                  1
##        Dummugudem           Eligedu     Eturu Nagaram       Farooqnagar
##                 1                  1                 2                  1
##            Gadwal            Gajwel      Gambhiraopet          Gandhari
##                 1                  1                 1                  2
##        Gangadhara            Gattu           Ghanpur     Ghanpur Mulug
##                 1                  1                 1                  1
##        Gollapalli          Gopalpet     Govindaraopet       Gudihatnoor
##                 1                  1                 2                  1
##       Gummadiddla           Gundala       Gundlapally        Gurrampode
##                 1                  1                 1                  2
##        Hanamkonda           Hanwada       Hasanparthi         Hathnoora
##                 2                  1                 1                  2
##     Havelighanpur         Huzurabad     Ibrahimpatnam             Ieeza
##                 1                  1                 2                  1
##     Illanthakunta          Indalwai          Jadcherla         Jagdevpur
##                 1                  1                 1                  1
```

```
##          Jagityal            Jainath             Jaipur        Jakrampally
##                 1                  1                  1                  1
##           Jangaon           Jinnaram             Jukkal          Julapalli
##                 1                  1                  1                  1
##         Julurpadu          K-T Doddi       K.Mallepally              Kadam
##                 1                  2                  1                  1
##        Kagaznagar             Kalher             Kallur         Kalwakuthy
##                 1                  2                  1                  1
##         Kamalapur          Kamareddy          Kamepalli       Kammarapalli
##                 1                  2                  1                  1
##          kanagala              Kandi           Kandukur        Karakagudem
##                 1                  1                  1                  1
##           Kataram         Kathalapur          Kattangur           Kerameri
##                 1                  1                  2                  1
##        Kesamudram          Keshampet       Khammam (R )         Khammam(U)
##                 1                  1                  1                  2
##          Khanapur             Kodair          Kodangal           Kodimal
##                 2                  1                  2                  1
##         Koilkonda          Kollapur         Konaraopet          Konijerla
##                 1                  1                  1                  1
##            Koravi            Korutla            Kosigi          Kotagiri
##                 1                  1                  1                  1
##         Kothakota            Kothur          Kowthala             Kubeer
##                 1                  1                  1                  1
##        Kukatpally         Kulcharam            Kuntala         Kusumanchi
##                 2                  1                  1                  1
##       Laxmanchanda     Laxmidevipalli             Lingal    Lingala ghanpur
##                 1                  1                  1                  1
##         Lingampet         Lokeswaram         Machareddy            Maddnur
##                 1                  2                  1                  1
##            Maddur            Madgula        Mahabubabad  Mahabubnagar (R)
##                 1                  1                  1                  1
##    Mahabubnagar(U)         Mahadevpur         Maheswaram            Makthal
##                 1                  1                  1                  1
##          Maldakal         Malkajgiri           Mallapur            Mallial
##                 1                  1                  1                  1
##            Mamada            Manchal         Mandamarri            Manopad
##                 1                  1                  1                  1
##          Manuguru         Maredpally            Marikal           Marpalli
##                 1                  1                  1                  1
##         Marriguda          Marripeda        Mattampalle              Medak
##                 1                  1                  1                  1
##       Mellacheruvu           Metpalli            Midjil          Mirdoddi
##                 1                  1                  1                  1
##          Moinabad            Morthad           Mothukur         Mudigonda
##                 1                  1                  1                  1
##            Mugpal             Mulugu          Munugode             Mupkal
##                 1                  1                  2                  1
##       Nagarkurnool       Nagireddipet          Nakrekal           Nalgonda
##                 1                  1                  3                  3
##          Nampally           Nandipet          Nanganur         Narasampet
##                 1                  3                  1                  1
##          Narasapur         Narayanpet        Narketpalli            Narnoor
##                 2                  3                  2                  1
```

```
##             Narva       Nasurullabad           Nawabpet           Nekkonda
##                 1                  1                  2                  1
##        Nellikudur        Neradigonda         Nidamanuru             Nirmal
##                 1                  1                  1                  1
##         Nizamabad         Nizamsagar          Nuthankal             Odella
##                 1                  1                  1                  1
##         P.A Pally         Palakurthi          Palwancha             Pangal
##                 1                  1                  1                  1
##        Papannapet             Parigi             Parkal       Parvathagiri
##                 1                  1                  1                  1
##       Patancheru              Pebbair       Peddamandadi           Peddamul
##                 2                  1                  1                  1
##        Peddapalli         Peddavoora        Pegadapalli              Pudur
##                 1                  1                  1                  1
##       Qutubullapur          R.C.Puram    Raghunadhapalli             Raikal
##                 2                  1                  1                  1
##           Raipole           Rajampet            Rajapet     Rajender Nagar
##                 1                  1                  3                  1
##         Ramannapet          RAMAREDDY         Rayaparthy            Rebbena
##                 1                  1                  1                  1
##            Regode            Regonda            Renjal             Rudrur
##                 1                  1                  1                  1
##       S.Narayanpur       Sadasivanagar           Saidabad           Saidapur
##                 1                  1                  1                  1
##            Sangem         Sarangapur         Sathupalli    Serilingampally
##                 1                  2                  1                  1
##           Shahbad      Shaligowraram         Shamshabad      Shankarampet
##                 1                  1                  1                  1
##     Shankarampet R       Shankarpalli          Shivampet           Siddipet
##                 1                  1                  3                  1
##          Sircilla          Sirikonda             Tadwai     Talakondapalli
##                 1                  1                  1                  1
##        Talamadugu              Tamsi             Tandur              Tanur
##                 1                  1                  2                  1
##             Tekmal         Tekulapalli         Telkapally           Thallada
##                 1                  2                  1                  1
##        Thimmajipet          Thimmapur          Thiparthy   Thirumalayapalem
##                 1                  1                  2                  2
##      Thungathurthi        Thurkapally            Tiryani            Toopran
##                 1                  1                  1                  2
##             Torrur      Uppununuthala             Utkoor             Utnoor
##                 1                  1                  2                  1
##           Vailpoor          Valigonda              Varni           Veldanda
##                 2                  2                  1                  1
##           Velgatur         Vemanpally             Vemsur         Vemulawada
##                 1                  1                  1                  1
##         Vikarabad          Waddepalli           warangal       Wardhannapet
##                 1                  1                  1                  1
##             Wargal            Y.Gutta           Yacharam              Yalal
##                 1                  1                  1                  1
##          Yedapalli          Yeldurthy          Yellandu     Yellareddipet
##                 1                  3                  1                  1
##         Yerrupalem           Zafergad
##                 1                  1
```

```
table(my_file$village)
```

```
##
##            Abdullapur              Adilabad               Adloor
##                     1                     1                     1
##              Ailapoor           Akkenepally               Alampur
##                     1                     1                     1
##              Alugunur                  Alur               Amangal
##                     1                     1                     1
##           Ambatipalli           Ambatipally              Ameenpet
##                     1                     1                     1
##             Angadipet           Anjanapuram             Ankushpur
##                     2                     1                     1
##      Annapureddypalli               Anumula               Argonda
##                     1                     1                     1
##        Arlagaddagudam             Arsapally              Asifabad
##                     1                     1                     1
##             Aswapuram              Atmakur              Atmakuru
##                     1                     1                     1
##         Ayyagaripally         Ayyavaripalli        B. Chandupatla
##                     1                     1                     1
##         B.Pochampalli           Bachannapet            Bachapally
##                     1                     1                     1
##               Bachode           Balanagar 1               Balmur
##                     1                     1                     1
##             Bandirevu          Bangarigadda        Banigandlapadu
##                     1                     1                     1
##             Bansawada             Bantwaram           Basheerabad
##                     1                     1                     1
##           Bazarhatnur            Beeravelly         Bellampally I
##                     1                     1                     1
##             Bethampudi          Bhadrachalam            Bhavanipet
##                     1                     1                     1
##              Bheemgal             Bhiknoor            Bhoompalli
##                     1                     1                     1
##                 Bhosi              Bibipet            Bijinepalli
##                     1                     1                     1
##               Bodhan             Bomraspet             Bondugala
##                     1                     1                     1
##             Borapatla             Byathole            Chandampet
##                     1                     1                     1
##        Chandraingutta              Chandur            Charbowli
##                     1                     1                     1
##              Chegunta            Chelpur(D)          Chennaraopet
##                     1                     1                     1
##             Chennur I              Chepial       Cheruvu Annaram
##                     1                     1                     1
##           Chinnaporla           Chintagudem            D.Malkapur
##                     1                     1                     1
##            Damagnapur           Dammaipally           Darul Shifa
##                     1                     1                     1
##           Devarakadra         Dhantalapally            Dharmapuri
##                     1                     1                     1
```

```
##            Dharmaram          Dharmasagar              Dharoor
##                    1                    1                    2
##                Doma            Domakonda          Domalapenta
##                    1                    1                    1
##         Doulathabad             Duggondi              Dupally
##                    1                    1                    1
##          Edulapally              Eligedu           Elkicherla
##                    1                    1                    1
##    Eturu Nagaram (D)    Eturu Nagaram (S)          Gachibowli
##                    1                    1                    1
##              Gadwal      Gajularamaram 2              Gajwel
##                    1                    1                    1
##          Gandamalla            Gandhari           Gangadhara
##                    1                    1                    1
##            Gannaram               Gattu         Gavvalapalli
##                    1                    1                    1
##            Ghanapur           Gollapalli            Gopalpet
##                    1                    1                    1
##          Gudihatnoor               Gudur         Gummadiddla
##                    1                    1                    1
##          Gummakonda          Gurrampode           Hanumkonda
##                    1                    1                    1
##              Hanwada          Himayanagar            Huzurabad
##                    1                    1                    1
##        Ibrahimpatnam               Ieeza       Illanthukunta
##                    1                    1                    1
##         Inayathnagar             Islampur             Isnapur
##                    1                    1                    1
##            Jadcherla            Jagityal             Jainath
##                    1                    1                    1
##              Jaipur          Jakrampally             Jangaon
##                    1                    1                    1
##             Jogipet              Jukkal           Julapalli
##                    1                    1                    1
##        Juvinile home         K.Mallepally               Kadam
##                    1                    1                    1
##           Kagaznagar          Kaithalapur              Kallur
##                    1                    1                    2
##           Kalwakuthy             kanagala          Kanaipally
##                    1                    1                    1
##        Kanchanapalli            Kandukur          Karakagudem
##                    2                    1                    1
##           Kathalapur           Kattangur            Kerameri
##                    1                    1                    1
##           Kesamudram           Keshampet          Khammam-II
##                    1                    1                    1
##            Khammam I            Khanapur            Kistapur
##                    1                    2                    1
##              Kodair             Kodangal               Kodur
##                    1                    1                    2
##            Kolanpaka          Kollampally            Kollapur
##                    1                    1                    1
##            Komararam            Kompalli            Kondapur
##                    1                    1                    1
```

```
##            Konijerla              Koppole              Korutla
##                    1                    1                    1
##              Kosigi             Kotakonda         Kothalingala
##                    1                    1                    1
##           Kothapalli               Kothur            Kowthala
##                    1                    1                    1
##              Kubeer            Kuchinerla         Kukatpally 1
##                    1                    1                    1
##            Kukunoor            Kulsanapur             Kuntala
##                    1                    1                    1
##           Kurumurthy            Kusumanchi         Laxmanchanda
##                    1                    1                    1
##       Laxmidevipalli       Lingala ghanpur           Lokeswaram
##                    1                    1                    1
##            M.Banjara             M.V.Palem          Machareddy
##                    1                    1                    1
##              Maddur               Madgula          Mahabubabad
##                    1                    1                    1
##           Maheswaram            Majidpalli              Makthal
##                    1                    1                    1
##            Maldakal            Malkajgiri             Mallapur
##                    1                    1                    1
##           Mallapuram           Malthummeda               Mamada
##                    1                    1                    1
##            Mamidala              Mamnoor              Manchal
##                    1                    1                    1
##           Manchippa            Mandamarri          Mangalpally
##                    1                    1                    1
##           Mannegudem              Manopad        Maredpally(s)
##                    1                    1                    1
##             Marikal              Marpalli             Marriguda
##                    1                    1                    1
##           Marripeda                Medak        Meerkhanpally
##                    1                    1                    1
##         Mellacheruvu               Menoor             Metpalli
##                    1                    1                    1
##         Mohammadnagar             Moinabad              Morthad
##                    1                    1                    1
##            Mudigonda               Mulugu           Munigadapa
##                    1                    1                    1
##              Mupkal           Mushampally           Mustikunta
##                    1                    1                    1
##          Mutayapally          Mutyalampadu              Nagaram
##                    1                    1                    1
##         Nagarkurnool             Nakrekal             Nampally
##                    1                    1                    1
##           Narasampet        Narasannapally            Narasapur
##                    1                    1                    1
##         Narayanagiri           Narayanapet           Narketpalli
##                    1                    1                    1
##               Narmal               Narnoor                Narva
##                    1                    1                    1
##            Nasthipur          Nasurullabad              Nawabpet
##                    1                    1                    1
```

```
##           Neelahally              Neelwai           Nellikudur
##                    1                    1                    1
##          Neradigonda             Nidamanur               Nirmal
##                    1                    1                    1
##            Nizamabad             Nukapalli             Nuthankal
##                    1                    1                    1
##              Nutpally               Odella            Old Alwal
##                    1                    1                    1
##                 Ootla         P. Narsapuram        P.D.Mallareddy
##                    1                    1                    1
##           P.Kondaram          Padamtipally             Pagideru
##                    1                    1                    1
##           Palakurthi             Palmokole               Pangal
##                    1                    1                    1
##           Papannapet               Parigi               Parkal
##                    1                    1                    1
##         Parvathagiri                Pasra         Patancheruvu
##                    1                    1                    1
##         Peddamandadi             Peddamul           Peddapalli
##                    1                    1                    1
##         Peddavolgote           Pegadapalli               perkit
##                    1                    1                    1
##         Prakashnagar         Project Nagar                Pudur
##                    1                    1                    1
##               Pulkal        Qutubullapur 2            R.C.Puram
##                    1                    1                    1
##    Racherla Boppaspur       Raghunadhapalem       Raghunadhapalli
##                    1                    1                    1
##                Raikal               Raipole              Rajapet
##                    1                    1                    1
##            Rajavaram        Rajender Nagar             Ramadugu
##                    1                    1                    1
##            Ramanapet           Ramayapally              Rampur
##                    1                    1                    1
##            Rangampet           Ravikampadu              Rayakur
##                    1                    1                    1
##           Rayaparthy            Rebbena II           Reddypally
##                    1                    1                    1
##             Reddypet               REGELLA             Regonda
##                    1                    1                    1
##         Rudraram (S)              Rukmapur      S L B C G V guda
##                    1                    1                    1
##         S.Narayanpur             S.R.Nagar        Sadasivanagar
##                    1                    1                    1
##             Saidapur               Sangem          Santhinagar
##                    1                    1                    1
##           Sarangapur             Sarvapoor        Seetarampuram
##                    1                    1                    1
##           Seethampet             Shadnagar              Shahbad
##                    1                    1                    1
##           Shanigaram Shankarampally 125(D)         Shankarampet
##                    1                    1                    1
##         Shankarpalli             Shivampet             Siddipet
##                    1                    1                    1
```

```
##        Singarajupalli       Sircilla(urban)            Sirdepally
##                     1                     1                     1
##              Somaram           Sreerampur           T. somaram
##                     1                     1                     1
##         T.lingampally       Talakondapalli            Talamadugu
##                     1                     1                     1
##                Tamsi               Tandur              Tandur
##                     1                     1                     1
##             Tatikole               Tekmal           Telkapally
##                     1                     1                     1
##            Thipparthy           Thirmalapur        Thungathurthi
##                     1                     1                     1
##       Tirumalayapalem              Tiryani              Toopran
##                     1                     1                     1
##                Torrur           Ulsaipalem         Uppununthala
##                     1                     1                     1
##           Usrikapally               Utkoor              Utnoor
##                     1                     1                     1
##             Vailpoor           Vallabhapur             Vangara
##                     1                     1                     1
##                Varni     Vattinenipally(s)             Vavikole
##                     1                     1                     1
##             Veldanda             Velgatur           Veliminedu
##                     1                     1                     1
##            Velmaguda               Velmal              Vemsur
##                     1                     1                     1
##           Vemulakonda     Vemulawada(rural)         Vikarabad(S)
##                     1                     1                     1
##          Wardhannapet              Yacharam               Yalal
##                     1                     1                     1
##            Yanampally             Yedapalli            Yenugonda
##                     1                     1                     1
##            Yerrapahad              Zafergad
##                     1                     1
```

```
str(my_file$mandal)
```

```
##  chr [1:374] "Adilabad" "Bazarhatnur" "Gudihatnoor" "Jainath" "Narnoor" ...
```

#transforming variables

```
log(my_file$lat_gis)
```

```
##   [1] 2.979008 2.968304 2.971724 2.982168 2.970192 2.959781 2.977232 2.979659
##   [9] 2.964185 2.853853 2.881537 2.871686 2.870435 2.856390 2.885917 2.878637
##  [17] 2.858661 2.892295 2.866364 2.888704 2.887590 2.865624 2.864484 2.874129
##  [25] 2.910640 2.923280 2.928292 2.903617 2.858900 2.856334 2.854975 2.852612
##  [33] 2.855378 2.858824 2.855608 2.854226 2.941643 2.933357 2.939088 2.935196
##  [41] 2.931342 2.924490 2.934846 2.942579 2.929026 2.936395 2.928865 2.939709
##  [49] 2.940733 2.935733 2.878681 2.867439 2.873412 2.871251 2.871817 2.877213
##  [57] 2.877236 2.766095 2.786515 2.789029 2.787022 2.780600 2.773537 2.776960
##  [65] 2.783714 2.780660 2.770436 2.768832 2.911970 2.901202 2.899937 2.901696
```

```
##  [73] 2.912296 2.904165 2.912133 2.910430 2.910392 2.909292 2.905184 2.905758
##  [81] 2.908485 2.916851 2.896685 2.916040 2.906524 2.903288 2.912840 2.912677
##  [89] 2.906518 2.919575 2.922056 2.900844 2.902234 2.912398 2.835611 2.845491
##  [97] 2.858161 2.850516 2.846844 2.847957 2.846135 2.846118 2.844182 2.844572
## [105] 2.845764 2.850689 2.851715 2.841660 2.824944 2.963189 2.962987 2.967539
## [113] 2.971537 2.957875 2.953580 2.863041 2.854981 2.872525 2.862372 2.867802
## [121] 2.855619 2.867314 2.866967 2.810787 2.803342 2.799805 2.802312 2.809752
## [129] 2.821878 2.819841 2.818995 2.814210 2.819072 2.818434 2.826603 2.948223
## [137] 2.936631 2.936209 2.943316 2.952714 2.946962 2.886704 2.895055 2.887317
## [145] 2.893301 2.875540 2.878389 2.892712 2.887220 2.893240 2.888759 2.878428
## [153] 2.878170 2.880383 2.889004 2.883526 2.881516 2.888548 2.885616 2.887328
## [161] 2.861858 2.860485 2.860485 2.861115 2.859282 2.863914 2.862201 2.910155
## [169] 2.908943 2.901830 2.904800 2.785726 2.793073 2.805496 2.813431 2.789300
## [177] 2.779254 2.789753 2.802860 2.799419 2.810751 2.800327 2.817267 2.815817
## [185] 2.821307 2.823347 2.814220 2.817150 2.808105 2.832277 2.832311 2.831335
## [193] 2.834089 2.846589 2.814009 2.810922 2.813958 2.824452 2.828178 2.817167
## [201] 2.829521 2.844831 2.842691 2.829673 2.842362 2.839038 2.841363 2.842543
## [209] 2.847171 2.831737 2.836747 2.839681 2.850133 2.844924 2.823757 2.816400
## [217] 2.820099 2.847780 2.834022 2.837042 2.832309 2.824766 2.803392 2.808923
## [225] 2.813487 2.818637 2.817938 2.801577 2.811852 2.808271 2.949511 2.946914
## [233] 2.957485 2.953310 2.945336 2.942875 2.945728 2.948534 2.949291 2.951761
## [241] 2.950177 2.934282 2.929325 2.926945 2.923860 2.924612 2.918446 2.928908
## [249] 2.928988 2.918633 2.935239 2.919877 2.939849 2.936672 2.941091 2.935504
## [257] 2.927739 2.930287 2.923710 2.923377 2.934442 2.932420 2.920092 2.927346
## [265] 2.930943 2.920586 2.924263 2.915216 2.923253 2.852093 2.824006 2.852785
## [273] 2.858193 2.837908 2.829911 2.842505 2.823955 2.841123 2.842581 2.846071
## [281] 2.852439 2.845142 2.851631 2.836924 2.845026 2.859512 2.826722 2.836150
## [289] 2.881208 2.872711 2.871942 2.873830 2.869653 2.898042 2.897220 2.868529
## [297] 2.865162 2.863676 2.862721 2.881707 2.879945 2.897060 2.874773 2.895293
## [305] 2.886230 2.896094 2.880507 2.906011 2.907554 2.916164 2.909932 2.917037
## [313] 2.911111 2.851663 2.855705 2.841517 2.818610 2.823601 2.852660 2.856398
## [321] 2.859053 2.845549 2.842814 2.850880 2.838376 2.833113 2.839032 2.841006
## [329] 2.863857 2.859053 2.843746 2.852439 2.848623 2.847870 2.851920 2.844909
## [337] 2.793432 2.807175 2.795976 2.796565 2.787921 2.779788 2.799145 2.894176
## [345] 2.883851 2.891449 2.884734 2.886068 2.879653 2.901510 2.876074 2.873237
## [353] 2.883929 2.877680 2.897782 2.889844 2.890416 2.885186 2.894674 2.900547
## [361] 2.889366 2.873399 2.852797 2.848291 2.856686 2.877416 2.875226 2.875014
## [369] 2.849730 2.841690 2.875433 2.856468 2.853465 2.869804
```

```
log(my_file$long_gis)
```

```
##   [1] 4.363413 4.361197 4.363254 4.364880 4.367581 4.361979 4.361784 4.362166
##   [9] 4.366513 4.392300 4.392091 4.393225 4.391867 4.389630 4.393461 4.387263
##  [17] 4.388510 4.389103 4.389734 4.391110 4.389250 4.387636 4.388257 4.386019
##  [25] 4.380194 4.380755 4.382800 4.379242 4.362384 4.362401 4.362296 4.362895
##  [33] 4.362908 4.363213 4.362767 4.363201 4.370737 4.370108 4.364110 4.367498
##  [41] 4.365513 4.368635 4.365724 4.365724 4.368463 4.364633 4.370263 4.366949
##  [49] 4.368917 4.371594 4.369982 4.372908 4.371312 4.371973 4.374782 4.372779
##  [57] 4.375593 4.358260 4.352584 4.352106 4.354168 4.351254 4.352490 4.354546
##  [65] 4.350613 4.352696 4.356110 4.354643 4.355156 4.361811 4.362500 4.363392
##  [73] 4.353717 4.362283 4.358080 4.356518 4.351619 4.361103 4.361335 4.357452
##  [81] 4.363009 4.352237 4.358528 4.355079 4.355537 4.360190 4.362041 4.360088
##  [89] 4.359564 4.371296 4.369560 4.374594 4.373303 4.371360 4.384812 4.388837
##  [97] 4.384995 4.383237 4.383691 4.383820 4.385655 4.381505 4.383258 4.393142
```

```
## [105] 4.387791 4.380783 4.382663 4.392039 4.388009 4.373062 4.375719 4.370160
## [113] 4.378676 4.374700 4.372888 4.378705 4.382575 4.380862 4.381884 4.382040
## [121] 4.380702 4.379018 4.377781 4.358195 4.353568 4.354357 4.354453 4.354563
## [129] 4.355391 4.358277 4.355419 4.355734 4.356978 4.359672 4.357015 4.375796
## [137] 4.379276 4.376762 4.375478 4.375207 4.379712 4.363336 4.359511 4.358215
## [145] 4.360175 4.360316 4.360079 4.357803 4.354501 4.355647 4.361467 4.361441
## [153] 4.361408 4.361759 4.357098 4.362775 4.362812 4.361176 4.360813 4.360820
## [161] 4.363201 4.362461 4.361824 4.361786 4.363544 4.362079 4.362589 4.387512
## [169] 4.387303 4.384168 4.384454 4.367907 4.363944 4.359224 4.362946 4.360220
## [177] 4.360624 4.362410 4.360581 4.362338 4.359142 4.364261 4.363367 4.375753
## [185] 4.373106 4.373138 4.374593 4.373297 4.368034 4.369681 4.369592 4.370208
## [193] 4.370246 4.369703 4.366880 4.367632 4.366469 4.370604 4.371305 4.369208
## [201] 4.371956 4.373922 4.373494 4.367722 4.369663 4.369368 4.374506 4.374763
## [209] 4.375504 4.373551 4.373250 4.372188 4.372426 4.371867 4.373052 4.370517
## [217] 4.371762 4.374789 4.374729 4.375317 4.352926 4.351658 4.350279 4.352832
## [225] 4.351785 4.352054 4.350035 4.352298 4.350282 4.350497 4.366608 4.365162
## [233] 4.356014 4.357995 4.362600 4.357193 4.357861 4.363391 4.361103 4.360062
## [241] 4.355162 4.360739 4.362359 4.355330 4.360663 4.359896 4.359716 4.360185
## [249] 4.363925 4.353805 4.362449 4.358169 4.361334 4.358169 4.359502 4.358540
## [257] 4.357588 4.356593 4.354880 4.362156 4.361773 4.361645 4.355464 4.356119
## [265] 4.371815 4.372745 4.372597 4.375254 4.374372 4.357529 4.363640 4.358681
## [273] 4.361416 4.362844 4.360923 4.360393 4.365489 4.362321 4.366139 4.364346
## [281] 4.360420 4.360560 4.361888 4.359073 4.358041 4.358387 4.361990 4.365262
## [289] 4.357644 4.361414 4.358721 4.359506 4.360795 4.355015 4.354803 4.359132
## [297] 4.359277 4.360167 4.360551 4.365449 4.367220 4.364336 4.364795 4.369353
## [305] 4.364602 4.367389 4.364201 4.363768 4.368896 4.365883 4.366698 4.367723
## [313] 4.364586 4.377301 4.375719 4.378504 4.380592 4.380832 4.378167 4.376904
## [321] 4.352804 4.349555 4.353105 4.353807 4.354604 4.350813 4.351582 4.350420
## [329] 4.353769 4.356491 4.355169 4.352340 4.356157 4.351451 4.355606 4.352083
## [337] 4.354219 4.357304 4.358436 4.356199 4.358047 4.357011 4.357031 4.378746
## [345] 4.380428 4.379620 4.381151 4.380619 4.379527 4.377484 4.378571 4.376352
## [353] 4.378411 4.376755 4.373805 4.374207 4.376483 4.376975 4.375949 4.376979
## [361] 4.377102 4.369696 4.367050 4.366954 4.373738 4.369024 4.368599 4.369344
## [369] 4.370651 4.367674 4.367596 4.368844 4.371262 4.368329
```

```
s<-my_file$lat_gis-my_file$long_gis-max(my_file$lat_gis)/min(my_file$lat_gis)

s
```

```
##   [1] -60.09759 -60.13314 -60.22786 -60.15064 -60.59818 -60.35960 -60.00469
##   [8] -59.98689 -60.63079 -64.71278 -64.20876 -64.47534 -64.38759 -64.45319
##  [15] -64.24119 -63.87119 -64.32334 -63.77469 -64.28719 -64.00119 -63.87119
##  [22] -64.13119 -64.20119 -63.85119 -62.72615 -62.53729 -62.60737 -62.77869
##  [29] -62.24278 -62.28881 -62.30419 -62.39219 -62.34519 -62.30919 -62.33019
##  [36] -62.38819 -61.39619 -61.50279 -60.92203 -61.26209 -61.17814 -61.55230
##  [43] -61.12897 -60.98289 -61.45399 -61.01397 -61.59925 -61.13371 -61.26953
##  [50] -61.57559 -62.49259 -62.92309 -62.69129 -62.78179 -62.99459 -62.74009
##  [57] -62.96309 -63.46586 -62.69572 -62.61778 -62.81069 -62.68819 -62.89762
##  [64] -63.00259 -62.58819 -62.79913 -63.22889 -63.14019 -60.72719 -61.44419
##  [71] -61.52119 -61.55919 -60.60919 -61.42719 -60.95219 -60.86159 -60.48119
##  [78] -61.24089 -61.33429 -61.02009 -61.40519 -60.41019 -61.26919 -60.64619
##  [85] -60.85676 -61.27919 -61.24919 -61.09919 -61.17119 -61.85389 -61.67064
##  [92] -62.45928 -62.33157 -61.99155 -64.42353 -64.57789 -64.04954 -64.04139
##  [99] -64.14119 -64.13229 -64.31089 -63.97869 -64.15229 -64.94119 -64.48899
```

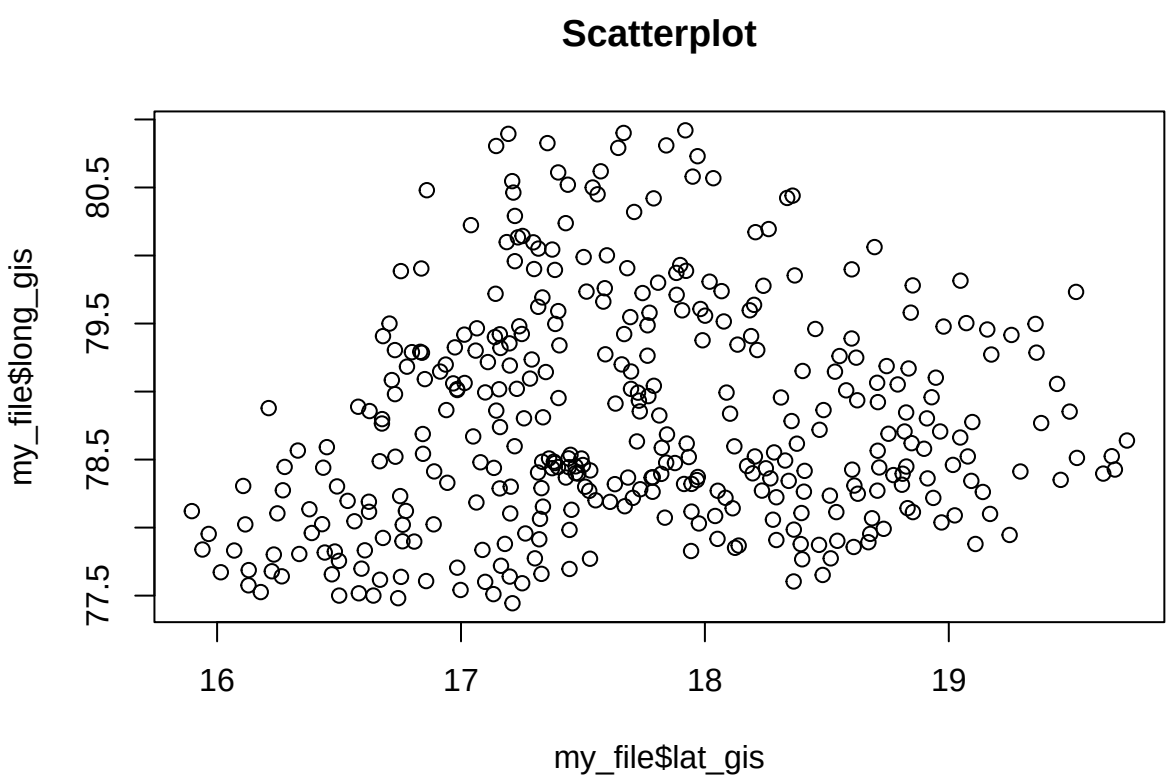
```
## [106] -63.84209 -63.97464 -64.90199 -64.86119 -61.16764 -61.38248 -60.85344
## [113] -61.45169 -61.40017 -61.33897 -63.46119 -63.91096 -63.46649 -63.72679
## [120] -63.64399 -63.75009 -63.41119 -63.31869 -62.73419 -62.49689 -62.61651
## [127] -62.58275 -62.46823 -62.33006 -62.58942 -62.38066 -62.48519 -62.50088
## [134] -62.72209 -62.37709 -61.67228 -62.16919 -61.97689 -61.74037 -61.53958
## [141] -62.00825 -61.82569 -61.37559 -61.41369 -61.45919 -61.78809 -61.71889
## [148] -61.28438 -61.12580 -61.10669 -61.64219 -61.82489 -61.82689 -61.81499
## [155] -61.29619 -61.83859 -61.87739 -61.62319 -61.64739 -61.61719 -62.25519
## [162] -62.22119 -62.17119 -62.15719 -62.32719 -62.13119 -62.20119 -63.32156
## [169] -63.32699 -63.20528 -63.17399 -63.90801 -63.47645 -62.90234 -63.06219
## [176] -63.24591 -63.44019 -63.41019 -63.05207 -63.24641 -62.80879 -63.38250
## [183] -63.03123 -64.03407 -63.73196 -63.70019 -63.96855 -63.81672 -63.55108
## [190] -63.27553 -63.26789 -63.33319 -63.28939 -63.03244 -63.36193 -63.47260
## [197] -63.33045 -63.48086 -63.47346 -63.49283 -63.50228 -63.39679 -63.39961
## [204] -63.16508 -63.10197 -63.13560 -63.50272 -63.50283 -63.48214 -63.59105
## [211] -63.48192 -63.34763 -63.18676 -63.23225 -63.68647 -63.60911 -63.64569
## [218] -63.41480 -63.64575 -63.64098 -61.96207 -61.99119 -62.24077 -62.34732
## [225] -62.19015 -62.12498 -61.98009 -62.42729 -62.10079 -62.17693 -60.92053
## [232] -60.85624 -59.93753 -60.17229 -60.68500 -60.30869 -60.30659 -60.68614
## [239] -60.49230 -60.36353 -60.01130 -60.74819 -60.96819 -60.46319 -60.93719
## [246] -60.86319 -60.96358 -60.80559 -61.09739 -60.49905 -60.86419 -60.81619
## [253] -60.68981 -60.50219 -60.52289 -60.55319 -60.62448 -60.49919 -60.48849
## [260] -61.06319 -60.82619 -60.85419 -60.60119 -60.51719 -61.68309 -61.94998
## [267] -61.86989 -62.24839 -62.02949 -61.98119 -62.93949 -62.05919 -62.17919
## [274] -62.64119 -62.62663 -62.37039 -63.08573 -62.54519 -62.82019 -62.61919
## [281] -62.20119 -62.33819 -62.33019 -62.36263 -62.14319 -61.91919 -62.76419
## [288] -62.86119 -61.47836 -61.92419 -61.72699 -61.75499 -61.92969 -60.97059
## [295] -60.96899 -61.81929 -61.88989 -61.98553 -62.03239 -62.08119 -62.25209
## [302] -61.71759 -62.15309 -62.14489 -61.93369 -61.97539 -62.00449 -61.51004
## [309] -61.88564 -61.48979 -61.66872 -61.61866 -61.48081 -63.54749 -63.35147
## [316] -63.81811 -64.37297 -64.30833 -63.59919 -63.43367 -61.49219 -61.47419
## [323] -61.79661 -61.71219 -61.98919 -61.78439 -61.74309 -61.61919 -61.48319
## [330] -61.77919 -61.94119 -61.57119 -61.93419 -61.58119 -61.83419 -61.68119
## [337] -62.71019 -62.72459 -62.99739 -62.81318 -63.09846 -63.14919 -62.83569
## [344] -62.91059 -63.23039 -63.02949 -63.27239 -63.20599 -63.23339 -62.67699
## [351] -63.22072 -63.09429 -63.06809 -63.04759 -62.45231 -62.62759 -62.79809
## [358] -62.93119 -62.67889 -62.65430 -62.86629 -62.56373 -62.71577 -62.78615
## [365] -63.17708 -62.43939 -62.44473 -62.50731 -63.05316 -62.95648 -62.36192
## [372] -62.79353 -63.03684 -62.51928
```

#plots a histogram of the lat_gis quantitative variable

```
hist(my_file$lat_gis,main = "HISTOGRAM OF PRICE")
```

#plots a scatterplot of lat_gis vs long_gis.

```
plot(my_file$lat_gis,my_file$long_gis,main = "Scatterplot")
```


Scatterplot
my_file$long_gis
77.5
78.5
79.5
80.5
16
17
18
19
my_file$lat_gis