Worksheet-1 in R

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1.Vector Age

```
age_ <- c(34, 28, 22, 36, 27, 18, 52, 39, 42, 29, 35, 31, 27, 22, 37, 34, 19, 20, 57, 49, 50, 37, 46, 25
51, 35, 24, 33, 41.)
length(age_)
```

```
## [1] 34
```

2.Reciprocal Age

```
age_ <-c(34, 28, 22, 36, 27, 18, 52, 39, 42, 29, 35, 31, 27, 22, 37, 34, 19, 20, 57, 49, 50, 37, 46, 25
51, 35, 24, 33, 41.)
recipro_age <- 1/age_
print(recipro_age)
```

```
##  [1] 0.02941176 0.03571429 0.04545455 0.02777778 0.03703704 0.05555556
##  [7] 0.01923077 0.02564103 0.02380952 0.03448276 0.02857143 0.03225806
## [13] 0.03703704 0.04545455 0.02702703 0.02941176 0.05263158 0.05000000
## [19] 0.01754386 0.02040816 0.02000000 0.02702703 0.02173913 0.04000000
## [25] 0.05882353 0.02702703 0.02380952 0.01886792 0.02439024 0.01960784
## [31] 0.02857143 0.04166667 0.03030303 0.02439024
```

3.New Age

```
age_ <-c(34, 28, 22, 36, 27, 18, 52, 39, 42, 29, 35, 31, 27, 22, 37, 34, 19, 20, 57, 49, 50, 37, 46, 25
51, 35, 24, 33, 41.)
new_age <-c (age_, 0, age_)
print(new_age)
```

```
##  [1] 34 28 22 36 27 18 52 39 42 29 35 31 27 22 37 34 19 20 57 49 50 37 46 25 17
## [26] 37 42 53 41 51 35 24 33 41  0 34 28 22 36 27 18 52 39 42 29 35 31 27 22 37
## [51] 34 19 20 57 49 50 37 46 25 17 37 42 53 41 51 35 24 33 41
```

4.Sort Val. Age

```
age_ <-c(34, 28, 22, 36, 27, 18, 52, 39, 42, 29, 35, 31, 27, 22, 37, 34, 19, 20, 57, 49, 50, 37, 46, 25
51, 35, 24, 33, 41.)
sort_age <- sort(age_)
print(sort_age)
```

```
##  [1] 17 18 19 20 22 22 24 25 27 27 28 29 31 33 34 34 35 35 36 37 37 37 39 41 41
## [26] 42 42 46 49 50 51 52 53 57
```

Min and Max Age

```
age_ <-c(34, 28, 22, 36, 27, 18, 52, 39, 42, 29, 35, 31, 27, 22, 37, 34, 19, 20, 57, 49, 50, 37, 46, 25
51, 35, 24, 33, 41.)
min_age <- min(age_)
```

```r
max_age <- max(age_)
print(min_age)
```

```
## [1] 17
```

```r
print(max_age)
```

```
## [1] 57
```

6. 2nd Data Set

```r
data_ <- c(2.4, 2.8, 2.1, 2.5, 2.4, 2.2, 2.5,
2.3, 2.5, 2.3, 2.4, 2.7)
length(data_)
```

```
## [1] 12
```

7. Doubled Data

```r
data_ <- c(2.4, 2.8, 2.1, 2.5, 2.4, 2.2, 2.5,
2.3, 2.5, 2.3, 2.4, 2.7)
data_doubled <- data_*2
print(data_doubled)
```

```
##  [1] 4.8 5.6 4.2 5.0 4.8 4.4 5.0 4.6 5.0 4.6 4.8 5.4
```

8. Sequence

- 8.1

```r
seq(1:100)
```

```
##   [1]   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18
##  [19]  19  20  21  22  23  24  25  26  27  28  29  30  31  32  33  34  35  36
##  [37]  37  38  39  40  41  42  43  44  45  46  47  48  49  50  51  52  53  54
##  [55]  55  56  57  58  59  60  61  62  63  64  65  66  67  68  69  70  71  72
##  [73]  73  74  75  76  77  78  79  80  81  82  83  84  85  86  87  88  89  90
##  [91]  91  92  93  94  95  96  97  98  99 100
```

- 8.2

```r
seq(20:60)
```

```
##  [1]  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
## [26] 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41
```

- 8.3

```r
mean(20:60)
```

```
## [1] 40
```

8.4

```r
sum(51:91)
```

```
## [1] 2911
```

8.5

```r
seq(1:1000)
```

```
##    [1]    1    2    3    4    5    6    7    8    9   10   11   12   13   14
##   [15]   15   16   17   18   19   20   21   22   23   24   25   26   27   28
```

```
##   [29]   29   30   31   32   33   34   35   36   37   38   39   40   41   42
##   [43]   43   44   45   46   47   48   49   50   51   52   53   54   55   56
##   [57]   57   58   59   60   61   62   63   64   65   66   67   68   69   70
##   [71]   71   72   73   74   75   76   77   78   79   80   81   82   83   84
##   [85]   85   86   87   88   89   90   91   92   93   94   95   96   97   98
##   [99]   99  100  101  102  103  104  105  106  107  108  109  110  111  112
##  [113]  113  114  115  116  117  118  119  120  121  122  123  124  125  126
##  [127]  127  128  129  130  131  132  133  134  135  136  137  138  139  140
##  [141]  141  142  143  144  145  146  147  148  149  150  151  152  153  154
##  [155]  155  156  157  158  159  160  161  162  163  164  165  166  167  168
##  [169]  169  170  171  172  173  174  175  176  177  178  179  180  181  182
##  [183]  183  184  185  186  187  188  189  190  191  192  193  194  195  196
##  [197]  197  198  199  200  201  202  203  204  205  206  207  208  209  210
##  [211]  211  212  213  214  215  216  217  218  219  220  221  222  223  224
##  [225]  225  226  227  228  229  230  231  232  233  234  235  236  237  238
##  [239]  239  240  241  242  243  244  245  246  247  248  249  250  251  252
##  [253]  253  254  255  256  257  258  259  260  261  262  263  264  265  266
##  [267]  267  268  269  270  271  272  273  274  275  276  277  278  279  280
##  [281]  281  282  283  284  285  286  287  288  289  290  291  292  293  294
##  [295]  295  296  297  298  299  300  301  302  303  304  305  306  307  308
##  [309]  309  310  311  312  313  314  315  316  317  318  319  320  321  322
##  [323]  323  324  325  326  327  328  329  330  331  332  333  334  335  336
##  [337]  337  338  339  340  341  342  343  344  345  346  347  348  349  350
##  [351]  351  352  353  354  355  356  357  358  359  360  361  362  363  364
##  [365]  365  366  367  368  369  370  371  372  373  374  375  376  377  378
##  [379]  379  380  381  382  383  384  385  386  387  388  389  390  391  392
##  [393]  393  394  395  396  397  398  399  400  401  402  403  404  405  406
##  [407]  407  408  409  410  411  412  413  414  415  416  417  418  419  420
##  [421]  421  422  423  424  425  426  427  428  429  430  431  432  433  434
##  [435]  435  436  437  438  439  440  441  442  443  444  445  446  447  448
##  [449]  449  450  451  452  453  454  455  456  457  458  459  460  461  462
##  [463]  463  464  465  466  467  468  469  470  471  472  473  474  475  476
##  [477]  477  478  479  480  481  482  483  484  485  486  487  488  489  490
##  [491]  491  492  493  494  495  496  497  498  499  500  501  502  503  504
##  [505]  505  506  507  508  509  510  511  512  513  514  515  516  517  518
##  [519]  519  520  521  522  523  524  525  526  527  528  529  530  531  532
##  [533]  533  534  535  536  537  538  539  540  541  542  543  544  545  546
##  [547]  547  548  549  550  551  552  553  554  555  556  557  558  559  560
##  [561]  561  562  563  564  565  566  567  568  569  570  571  572  573  574
##  [575]  575  576  577  578  579  580  581  582  583  584  585  586  587  588
##  [589]  589  590  591  592  593  594  595  596  597  598  599  600  601  602
##  [603]  603  604  605  606  607  608  609  610  611  612  613  614  615  616
##  [617]  617  618  619  620  621  622  623  624  625  626  627  628  629  630
##  [631]  631  632  633  634  635  636  637  638  639  640  641  642  643  644
##  [645]  645  646  647  648  649  650  651  652  653  654  655  656  657  658
##  [659]  659  660  661  662  663  664  665  666  667  668  669  670  671  672
##  [673]  673  674  675  676  677  678  679  680  681  682  683  684  685  686
##  [687]  687  688  689  690  691  692  693  694  695  696  697  698  699  700
##  [701]  701  702  703  704  705  706  707  708  709  710  711  712  713  714
##  [715]  715  716  717  718  719  720  721  722  723  724  725  726  727  728
##  [729]  729  730  731  732  733  734  735  736  737  738  739  740  741  742
##  [743]  743  744  745  746  747  748  749  750  751  752  753  754  755  756
##  [757]  757  758  759  760  761  762  763  764  765  766  767  768  769  770
##  [771]  771  772  773  774  775  776  777  778  779  780  781  782  783  784
```

```
##  [785]  785  786  787  788  789  790  791  792  793  794  795  796  797  798
##  [799]  799  800  801  802  803  804  805  806  807  808  809  810  811  812
##  [813]  813  814  815  816  817  818  819  820  821  822  823  824  825  826
##  [827]  827  828  829  830  831  832  833  834  835  836  837  838  839  840
##  [841]  841  842  843  844  845  846  847  848  849  850  851  852  853  854
##  [855]  855  856  857  858  859  860  861  862  863  864  865  866  867  868
##  [869]  869  870  871  872  873  874  875  876  877  878  879  880  881  882
##  [883]  883  884  885  886  887  888  889  890  891  892  893  894  895  896
##  [897]  897  898  899  900  901  902  903  904  905  906  907  908  909  910
##  [911]  911  912  913  914  915  916  917  918  919  920  921  922  923  924
##  [925]  925  926  927  928  929  930  931  932  933  934  935  936  937  938
##  [939]  939  940  941  942  943  944  945  946  947  948  949  950  951  952
##  [953]  953  954  955  956  957  958  959  960  961  962  963  964  965  966
##  [967]  967  968  969  970  971  972  973  974  975  976  977  978  979  980
##  [981]  981  982  983  984  985  986  987  988  989  990  991  992  993  994
##  [995]  995  996  997  998  999 1000
```

9. Filter

```
Filter(function(i) { all(i %% c(3,5,7) != 0) }, seq(100))
```

```
##  [1]  1  2  4  8 11 13 16 17 19 22 23 26 29 31 32 34 37 38 41 43 44 46 47 52 53
## [26] 58 59 61 62 64 67 68 71 73 74 76 79 82 83 86 88 89 92 94 97
```

10. Backward

```
rev(1:100)
```

```
##   [1] 100  99  98  97  96  95  94  93  92  91  90  89  88  87  86  85  84  83
##  [19]  82  81  80  79  78  77  76  75  74  73  72  71  70  69  68  67  66  65
##  [37]  64  63  62  61  60  59  58  57  56  55  54  53  52  51  50  49  48  47
##  [55]  46  45  44  43  42  41  40  39  38  37  36  35  34  33  32  31  30  29
##  [73]  28  27  26  25  24  23  22  21  20  19  18  17  16  15  14  13  12  11
##  [91]  10   9   8   7   6   5   4   3   2   1
```

11. List all the natural members below 25 that are multiple of 3 and 5

```
nums <- 1:25
multiples <- nums[nums %% 3 == 0 | nums %% 5 == 0]
print(multiples)
```

```
##  [1]  3  5  6  9 10 12 15 18 20 21 24 25
```

```
sum(multiples)
```

```
## [1] 168
```

11.a

```
startpoint <- 10
endpoint <- 11

datapoints <- seq(startpoint, endpoint)
print(datapoints)
```

```
## [1] 10 11
```

```
numdata <- length(startpoint:endpoint)
print(numdata)
```

```
## [1] 2
```

12. Statements x <- {0 + x + 5 + } Describe the output. the output is an error.
13. *Set up a vector named score, consisting of 72, 86, 92, 63, 88, 89, 91, 92, 75, 75 and 77. To access individual elements of an atomic vector, one generally uses the x[i] construction. Find x[2] and x[3]. Write the R code and its output.

```
score <- c(72, 86, 92, 63, 88, 89, 91, 92, 75, 75,77)
score[2]
```

```
## [1] 86
```

```
score[3]
```

```
## [1] 92
```

14. Vector

```
a = c(1,2,NA,4,NA,6,7)
print(a,na.print="-999")
```

```
## [1]    1    2 -999    4 -999    6    7
```

15. special type of function

```
name = readline(prompt="Input your name: ")
```

```
## Input your name:
```

```
age = readline(prompt="Input your age: ")
```

```
## Input your age:
```

```
print(paste("My name is",name, "and I am",age ,"years old."))
```

```
## [1] "My name is  and I am  years old."
```

```
print(R.version.string)
```

```
## [1] "R version 4.4.1 (2024-06-14)"
```

The output is “My name is Jared J P. Basa and I am 20 years old.” “R version 4.4.1 (2024-06-14)”