175 HW1

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```
Data1 <- read.table("vets.txt")
colnames(Data1) <- c("Vet.time","Vet.cns")

library(survival)
vet.Surv <- Surv(Data1$Vet.time)
print(vet.Surv)
```

```
##   [1]  72 411 228 126 118  10  82 110 314 100  42   8 144  25  11  30 384   4
##  [19]  54  13 123  97 153  59 117  16 151  22  56  21  18 139  20  31  52 287
##  [37]  18  51 122  27  54   7  63 392  10   8  92  35 117 132  12 162   3  95
##  [55] 177 162 216 553 278  12 260 200 156 182 143 105 103 250 100 999 112  87
##  [73] 231 242 991 111   1 587 389  33  25 357 467 201   1  30  44 283  15  25
##  [91] 103  21  13  87   2  20   7  24  99   8  99  61  25  95  80  51  29  24
## [109]  18  83  31  51  90  52  73   8  36  48   7 140 186  84  19  45  80  52
## [127] 164  19  53  15  43 340 133 111 231 378  49
```

```
mean(Data1[,1])# Vet.surv == Vet.time
```

```
## [1] 121.6277
```

b/c data may be censored

```
sum(Data1$Vet.cns)
```

```
## [1] 128
```

```
sum(Data1$Vet.time*Data1$Vet.cns)
```

```
## [1] 15632
```

```
mean(vet.Surv)
```

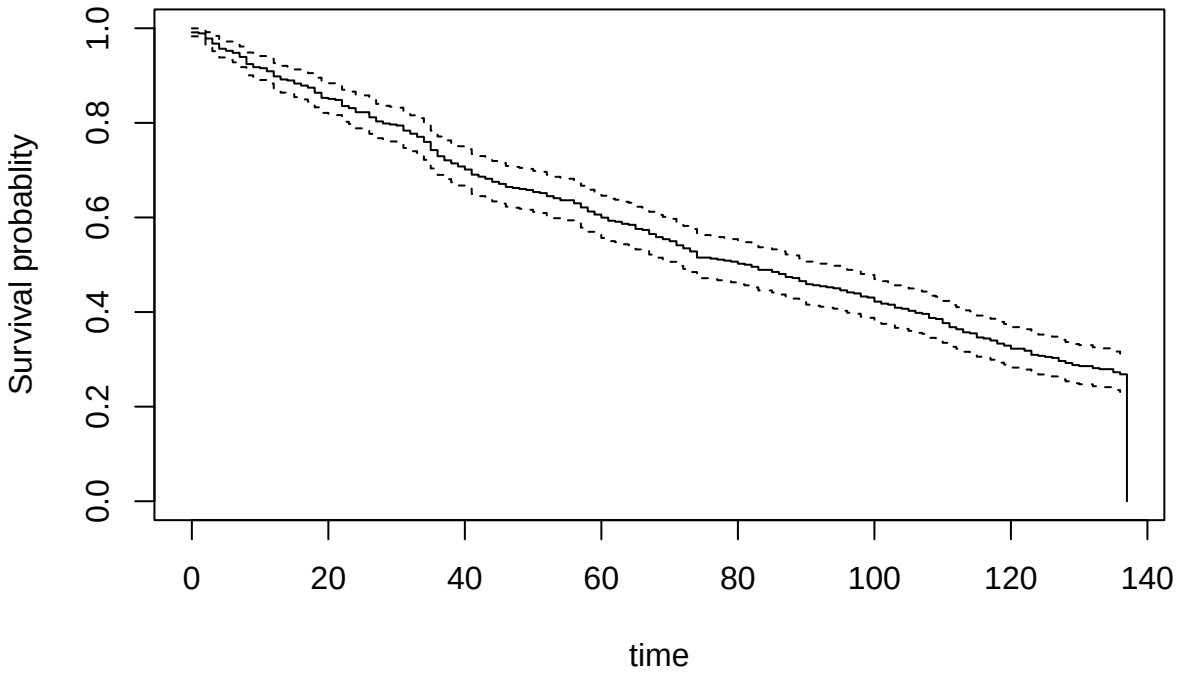
```
## [1] 61.31387
```

it shows total amount of time that people did finish the study aka not-censored

Surv function is to help distinguish the use of 0/1 or 1/2 of event occurrence.

```
retire <- read.table("retire.txt", header=TRUE,skip=2)
```

```
library(survival)
ret.surv <- Surv(retire$time)
sfit <- survfit(ret.surv ~ 1)
plot(sfit,xlab = "time",ylab = "Survival probablity")
```




```
summary(sfit)
```

```
## Call: survfit(formula = ret.surv ~ 1)
##
##  time n.risk n.event survival std.err lower 95% CI upper 95% CI
##     0    462       4    0.991 0.00431        0.983        1.000
##     1    458       1    0.989 0.00481        0.980        0.999
##     2    457       5    0.978 0.00677        0.965        0.992
##     3    452       5    0.968 0.00825        0.952        0.984
##     4    447       5    0.957 0.00947        0.938        0.975
##     5    442       2    0.952 0.00991        0.933        0.972
##     6    440       2    0.948 0.01032        0.928        0.969
##     7    438       4    0.939 0.01110        0.918        0.961
##     8    434       7    0.924 0.01231        0.900        0.949
##     9    427       3    0.918 0.01278        0.893        0.943
##    10    424       1    0.916 0.01293        0.891        0.941
##    11    423       3    0.909 0.01337        0.883        0.936
##    12    420       5    0.898 0.01406        0.871        0.926
##    13    415       3    0.892 0.01445        0.864        0.921
##    14    412       1    0.890 0.01458        0.861        0.919
##    15    411       3    0.883 0.01495        0.854        0.913
##    16    408       2    0.879 0.01518        0.850        0.909
##    17    406       2    0.874 0.01541        0.845        0.905
##    18    404       5    0.864 0.01597        0.833        0.896
##    19    399       5    0.853 0.01648        0.821        0.886
##    20    394       1    0.851 0.01658        0.819        0.884
```

```
##    21    393       1    0.848 0.01668        0.816        0.882
##    22    392       6    0.835 0.01725        0.802        0.870
##    23    386       2    0.831 0.01743        0.798        0.866
##    24    384       4    0.823 0.01778        0.788        0.858
##    26    380       5    0.812 0.01819        0.777        0.848
##    27    375       4    0.803 0.01850        0.768        0.840
##    28    371       2    0.799 0.01865        0.763        0.836
##    29    369       1    0.797 0.01873        0.761        0.834
##    30    368       1    0.794 0.01880        0.758        0.832
##    31    367       5    0.784 0.01916        0.747        0.822
##    32    362       3    0.777 0.01936        0.740        0.816
##    33    359       3    0.771 0.01956        0.733        0.810
##    34    356       5    0.760 0.01988        0.722        0.800
##    35    351       8    0.742 0.02034        0.704        0.783
##    36    343       6    0.729 0.02067        0.690        0.771
##    37    337       4    0.721 0.02087        0.681        0.763
##    38    333       3    0.714 0.02102        0.674        0.757
##    39    330       3    0.708 0.02116        0.668        0.751
##    40    327       3    0.701 0.02129        0.661        0.744
##    41    324       5    0.690 0.02151        0.650        0.734
##    42    319       2    0.686 0.02159        0.645        0.730
##    43    317       2    0.682 0.02167        0.641        0.726
##    44    315       3    0.675 0.02179        0.634        0.719
##    45    312       2    0.671 0.02186        0.629        0.715
##    46    310       3    0.665 0.02197        0.623        0.709
##    47    307       1    0.662 0.02200        0.621        0.707
##    48    306       1    0.660 0.02204        0.618        0.705
##    49    305       1    0.658 0.02207        0.616        0.703
##    50    304       2    0.654 0.02214        0.612        0.699
##    51    302       1    0.652 0.02217        0.609        0.696
##    52    301       3    0.645 0.02226        0.603        0.690
##    53    298       2    0.641 0.02232        0.598        0.686
##    54    296       2    0.636 0.02238        0.594        0.682
##    56    294       3    0.630 0.02246        0.587        0.675
##    57    291       4    0.621 0.02257        0.579        0.667
##    58    287       4    0.613 0.02267        0.570        0.659
##    59    283       3    0.606 0.02273        0.563        0.652
##    60    280       3    0.600 0.02280        0.557        0.646
##    61    277       3    0.593 0.02286        0.550        0.640
##    62    274       1    0.591 0.02287        0.548        0.637
##    63    273       2    0.587 0.02291        0.543        0.633
##    64    271       1    0.584 0.02293        0.541        0.631
##    65    270       4    0.576 0.02299        0.532        0.623
##    66    266       1    0.574 0.02301        0.530        0.621
##    67    265       4    0.565 0.02307        0.521        0.612
##    68    261       3    0.558 0.02310        0.515        0.606
##    69    258       2    0.554 0.02313        0.511        0.601
##    70    256       2    0.550 0.02315        0.506        0.597
##    71    254       4    0.541 0.02318        0.498        0.589
##    72    250       3    0.535 0.02321        0.491        0.582
##    73    247       3    0.528 0.02323        0.485        0.576
##    74    244       6    0.515 0.02325        0.472        0.563
##    76    238       1    0.513 0.02325        0.469        0.561
##    77    237       1    0.511 0.02326        0.467        0.559
```

```
##    78    236       1    0.509 0.02326        0.465        0.556
##    79    235       1    0.506 0.02326        0.463        0.554
##    80    234       2    0.502 0.02326        0.459        0.550
##    81    232       1    0.500 0.02326        0.456        0.548
##    82    231       2    0.496 0.02326        0.452        0.543
##    83    229       3    0.489 0.02326        0.446        0.537
##    85    226       2    0.485 0.02325        0.441        0.533
##    86    224       2    0.481 0.02324        0.437        0.528
##    87    222       3    0.474 0.02323        0.431        0.522
##    88    219       1    0.472 0.02323        0.428        0.520
##    89    218       3    0.465 0.02321        0.422        0.513
##    90    215       3    0.459 0.02318        0.416        0.507
##    91    212       1    0.457 0.02317        0.413        0.504
##    92    211       1    0.455 0.02317        0.411        0.502
##    93    210       1    0.452 0.02316        0.409        0.500
##    94    209       1    0.450 0.02315        0.407        0.498
##    95    208       2    0.446 0.02313        0.403        0.494
##    96    206       2    0.442 0.02310        0.399        0.489
##    97    204       1    0.439 0.02309        0.396        0.487
##    98    203       3    0.433 0.02305        0.390        0.481
##    99    200       1    0.431 0.02304        0.388        0.478
##   100    199       4    0.422 0.02298        0.379        0.470
##   101    195       2    0.418 0.02295        0.375        0.465
##   102    193       1    0.416 0.02293        0.373        0.463
##   103    192       3    0.409 0.02287        0.367        0.456
##   104    189       1    0.407 0.02286        0.365        0.454
##   105    188       2    0.403 0.02282        0.360        0.450
##   106    186       2    0.398 0.02278        0.356        0.446
##   107    184       1    0.396 0.02275        0.354        0.443
##   108    183       4    0.387 0.02267        0.345        0.435
##   109    179       1    0.385 0.02264        0.343        0.432
##   110    178       4    0.377 0.02254        0.335        0.424
##   111    174       4    0.368 0.02244        0.327        0.415
##   112    170       2    0.364 0.02238        0.322        0.410
##   113    168       3    0.357 0.02229        0.316        0.404
##   114    165       1    0.355 0.02226        0.314        0.401
##   115    164       4    0.346 0.02214        0.306        0.393
##   116    160       1    0.344 0.02210        0.303        0.390
##   117    159       2    0.340 0.02204        0.299        0.386
##   118    157       3    0.333 0.02193        0.293        0.379
##   119    154       2    0.329 0.02186        0.289        0.375
##   120    152       3    0.323 0.02175        0.283        0.368
##   122    149       2    0.318 0.02167        0.278        0.364
##   123    147       4    0.310 0.02151        0.270        0.355
##   124    143       1    0.307 0.02147        0.268        0.352
##   125    142       1    0.305 0.02142        0.266        0.350
##   126    141       1    0.303 0.02138        0.264        0.348
##   127    140       3    0.297 0.02125        0.258        0.341
##   128    137       2    0.292 0.02116        0.254        0.337
##   129    135       2    0.288 0.02106        0.249        0.332
##   130    133       1    0.286 0.02102        0.247        0.330
##   132    132       2    0.281 0.02092        0.243        0.326
##   133    130       1    0.279 0.02087        0.241        0.323
##   135    129       3    0.273 0.02072        0.235        0.317
```

```
##   136     126       2    0.268 0.02062        0.231        0.312
##   137     124     124    0.000     NaN           NA           NA
```

In first 50 month ,survival probability is pretty high, at least greater than 65% But the probability is steadlly decreasing