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REG NO : *19BCE7079*

COURSE : *Data_Analytics*

DATE : 03-11-2021

1) Data cleaning (Refer 4a doc)

- On the "findata" dataset, perform data cleaning using Janitor package.
- On the "mental-heath-in-tech-2016_20161114"dataset, perform data cleaning operation related to mislabeled variables, changing faulty data types, and identifying duplicated and distinct values.

```
> x=read.csv("Diabetes.csv")
> c=data.frame(x)
> c
     id chol stab.glu hdl ratio glyhb   location age gender height weight  frame bp.1s bp.1d bp.2s bp.2d waist hip time.ppn
1  1000  203       82  56   3.6  4.31 Buckingham  46 female     62    121 medium   118    59     NA     NA    29  38      720
2  1001  165       97  24   6.9  4.44 Buckingham  29 female     64    218  large   112    68     NA     NA    46  48      360
3  1002  228       92  37   6.2  4.64 Buckingham  58 female     61    256  large   190    92    185     92    49  57      180
4  1003   78       93  12   6.5  4.63 Buckingham  67   male     67    119  large   110    50     NA     NA    33  38      480
5  1005  249       90  28   8.9  7.72 Buckingham  64   male     68    183 medium   138    80     NA     NA    44  41      300
6  1008  248       94  69   3.6  4.81 Buckingham  34   male     71    190  large   132    86     NA     NA    36  42      195
7  1011  195       92  41   4.8  4.84 Buckingham  30   male     69    191 medium   161   112    161    112    46  49      720
8  1015  227       75  44   5.2  3.94 Buckingham  37   male     59    170 medium    NA    NA     NA     NA    34  39     1020
9  1016  177       87  49   3.6  4.84 Buckingham  45   male     69    166  large   160    80    128     86    34  40      300
10 1022  263       89  40   6.6  5.78 Buckingham  55 female     63    202  small   108    72     NA     NA    45  50      240
11 1024  242       82  54   4.5  4.77      Louisa  60 female     65    156 medium   130    90    130     90    39  45      300
12 1029  215      128  34   6.3  4.97      Louisa  38 female     58    195 medium   102    68     NA     NA    42  50       90
13 1030  238       75  36   6.6  4.47      Louisa  27 female     60    170 medium   130    80     NA     NA    35  41      720
14 1031  183       79  46   4.0  4.59      Louisa  40 female     59    165 medium    NA    NA     NA     NA    37  43       60
15 1035  191       76  30   6.4  4.67      Louisa  36   male     69    183 medium   100    66     NA     NA    36  40      225
16 1036  213       83  47   4.5  3.41      Louisa  33 female     65    157 medium   130    90    120     96    37  41      240
17 1037  255       78  38   6.7  4.33      Louisa  50 female     65    183 medium   130   100     NA     NA    37  43      180
18 1041  230      112  64   3.6  4.53      Louisa  20   male     67    159 medium   100    90     NA     NA    31  39     1440
19 1045  194       81  36   5.4  5.28      Louisa  36   male     64    126 medium   110    76     NA     NA    30  34      120
20 1250  196      206  41   4.8 11.24 Buckingham  62 female     65    196  large   178    90     NA     NA    46  51      540
21 1252  186       97  50   3.7  6.49 Buckingham  70   male     67    178  large   148    88    148     84    42  41     1020
22 1253  234       65  76   3.1  4.67 Buckingham  47   male     67    230  large   137   100    149    110    45  46      480
23 1254  203      299  43   4.7 12.74 Buckingham  38 female     69    288  large   136    83     NA     NA    48  55      240
24 1256  281       92  41   6.9  5.56 Buckingham  66 female     62    185  large   158    88    160     88    48  44      285
25 1271  228       66  45   5.1  4.61 Buckingham  24 female     61    113 medium   100    70    110     70    33  38      210
26 1277  179       80  92   1.9  4.18 Buckingham  41 female     72    118  small   144   112     NA     NA    28  36      780
```

2. HOW MANY ROWS AND COLUMNS ARE THERE?

```
> ncol(Diabetes)
[1] 19
> nrow(Diabetes)
[1] 403
>
```

4. FIND OUT THE COLUMNS NAMES IN THE DATAFRAME

```
> colnames(Diabetes)
 [1] "id"       "chol"     "stab.glu" "hdl"      "ratio"    "glyhb"    "location" "age"      "gender"   "height"
[11] "weight"   "frame"    "bp.1s"    "bp.1d"    "bp.2s"    "bp.2d"    "waist"    "hip"      "time.ppn"
>
>
```

5. ACCESS THE AGE COLUMN.

```
> Diabetes$age
  [1] 46 29 58 67 64 34 30 37 45 55 60 38 27 40 36 33 50 20 36 62 70 47 38 66 24 41 37 48 43 40 42 52 61 61 25 47 35 46
 [39] 57 70 22 52 36 43 72 37 54 60 40 55 76 43 65 45 70 20 62 92 49 44 74 36 51 38 31 28 22 71 76 91 40 23 20 40 52 76
 [77] 46 48 22 58 34 61 40 28 53 67 51 49 65 54 38 64 41 67 27 21 41 47 61 65 28 41 37 50 57 28 31 83 79 68 32 26 36 53
[115] 19 63 58 53 50 41 48 59 34 63 23 21 23 36 71 64 43 31 44 60 43 48 56 55 49 58 33 48 66 59 45 52 76 36 41 20 50 43
[153] 82 35 47 75 62 31 50 39 33 58 81 27 47 33 67 42 21 51 27 51 71 50 54 59 59 40 58 72 66 23 42 43 75 65 34 37 61 36
[191] 45 68 57 41 68 40 79 62 63 55 55 27 66 63 78 68 31 64 40 61 28 34 63 55 26 36 40 45 68 82 60 30 41 54 72 47 50 51
[229] 45 38 20 44 63 50 44 48 41 29 76 69 26 70 25 42 56 31 31 27 73 32 19 71 27 31 20 31 62 44 36 36 47 30 63 48 65 59
[267] 37 78 23 38 38 41 29 49 23 29 40 38 40 29 78 50 23 60 40 60 40 30 21 63 63 43 46 64 56 35 59 22 43 26 41 43 20 28
[305] 30 66 20 32 38 61 26 74 72 21 36 42 66 34 43 57 45 44 27 63 65 30 28 41 31 33 66 28 25 26 40 38 30 52 22 51 45 53
[343] 21 53 37 34 30 74 36 45 35 50 27 52 42 39 73 28 53 49 55 37 60 56 84 20 80 60 80 29 43 63 37 20 44 54 58 35 52 60
[381] 43 59 33 37 40 38 32 60 30 42 52 59 76 51 25 37 54 89 53 51 29 41 68
> 
```

6. DISPLAY THE NUMBER OF PEOPLE WHOSE AGE IS GREATER THAN 40.

```
> 
> x=read.csv("Diabetes.csv")
> c=data.frame(x)
> c=subset(c,age > 40)
> 
> c
     id chol stab.glu hdl ratio glyhb   location age gender height weight  frame bp.1s bp.1d bp.2s bp.2d waist hip
1  1000  203       82  56   3.6  4.31 Buckingham  46 female     62    121 medium   118    59     NA     NA    29  38
3  1002  228       92  37   6.2  4.64 Buckingham  58 female     61    256  large   190    92    185     92    49  57
4  1003   78       93  12   6.5  4.63 Buckingham  67   male     67    119  large   110    50     NA     NA    33  38
5  1005  249       90  28   8.9  7.72 Buckingham  64   male     68    183 medium   138    80     NA     NA    44  41
9  1016  177       87  49   3.6  4.84 Buckingham  45   male     69    166  large   160    80    128     86    34  40
10 1022  263       89  40   6.6  5.78 Buckingham  55 female     63    202  small   108    72     NA     NA    45  50
11 1024  242       82  54   4.5  4.77     Louisa  60 female     65    156 medium   130    90    130     90    39  45
17 1037  255       78  38   6.7  4.33     Louisa  50 female     65    183 medium   130   100     NA     NA    37  43
20 1250  196      206  41   4.8 11.24 Buckingham  62 female     65    196  large   178    90     NA     NA    46  51
21 1252  186       97  50   3.7  6.49 Buckingham  70   male     67    178  large   148    88    148     84    42  41
22 1253  234       65  76   3.1  4.67 Buckingham  47   male     67    230  large   137   100    149    110    45  46
24 1256  281       92  41   6.9  5.56 Buckingham  66 female     62    185  large   158    88    160     88    48  44
26 1277  179       80  92   1.9  4.18 Buckingham  41 female     72    118  small   144   112     NA     NA    28  36
28 1281   NA       74  NA    NA  4.28 Buckingham  48   male     68    100  small   120    85     NA     NA    27  33
29 1282  254       84  52   4.9  4.52 Buckingham  43 female     62    145 medium   125    70     NA     NA    31  38
31 1301  177      101  36   4.9  5.11 Buckingham  42 female     65    174 medium   146    94    139     89    37  40
32 1303  182       85  43   4.2  4.47 Buckingham  52   male     68    139  large   130    90     NA     NA    29  35
33 1304  265      330  34   7.8 15.52 Buckingham  61   male     74    191 medium   170    88    168     80    39  41
34 1305  182       85  37   4.9  5.66 Buckingham  61 female     69    174 medium   176    86    180     90    49  43
36 1312  183       81  60   3.1  4.03 Buckingham  47 female     66    186 medium   140    97     NA     NA    39  44
38 1314  190      107  32   5.9  3.56 Buckingham  46   male     72    205 medium    NA    NA     NA     NA    46  49
39 1315  173       80  57   3.0  6.21 Buckingham  57   male     71    145 medium   124    64     NA     NA    31  36
40 1316  182      206  43   4.2  7.91 Buckingham  70   male     69    214  large   158    90    160     96    45  48
42 1321  218       68  46   4.7  3.89 Buckingham  52 female     62    170 medium   142    79     NA     NA    40  43
44 1326  262       84  38   6.9    NA Buckingham  43   male     75    253  large   124    80     NA     NA    43  49
45 1500  213       76  40   5.3  5.96 Buckingham  72 female     59    137  large   130    60     NA     NA    40  40
47 1502  148      193  14  10.6  6.14 Buckingham  54 female     67    165 medium   140    65     NA     NA    42  42
48 2004  128      223  24   5.3 10.90 Buckingham  60   male     67    196 medium   110    68     NA     NA    42  43
50 2753  157       74  47   3.3  5.57 Buckingham  55 female     66    219 medium   150    82    142     78    43  52
51 2754  196       82  58   3.4  4.25 Buckingham  76   male     65    154   <NA>   158    78    140     84    37  41
52 2756  237       87  41   5.8  5.35 Buckingham  43 female     64    181 medium   104    90     NA     NA    36  46
53 2757  212       97  45   4.7  6.33 Buckingham  65 female     61    187  large   158    94    149     96    43  47
54 2758  233       92  39   6.0  4.56 Buckingham  45 female     64    167  large   124   '86     NA     NA    39  44
55 2762  289      111  50   5.8  9.39 Buckingham  70 female     60    220 medium   126    80     NA     NA    51  54
57 2765  204      128  61   3.3  5.20 Buckingham  62   male     68    180  large   141    81     NA     NA    38  41
58 2770  165       94  69   2.4  4.98 Buckingham  92 female     62    217  large   160    82     NA     NA    51  51
59 2773  237      233  58   4.1 13.70 Buckingham  49 female     62    189  large   130    90     NA     NA    43  47
```

7. FIND OUT THE FEMALE DIABETIC PATIENTS OF AGE > 30

```
> x=read.csv("Diabetes.csv")
> c=data.frame(x)
> c=subset(c,gender=="female" & age > 30 & glyhb > 7 )
> c
```

	id	chol	stab.glu	hdl	ratio	glyhb	location	age	gender	height	weight	frame	bp.1s	bp.1d	bp.2s	bp.2d	waist	hip
20	1250	196	206	41	4.8	11.24	Buckingham	62	female	65	196	large	178	90	NA	NA	46	51
23	1254	203	299	43	4.7	12.74	Buckingham	38	female	69	288	large	136	83	NA	NA	48	55
55	2762	289	111	50	5.8	9.39	Buckingham	70	female	60	220	medium	126	80	NA	NA	51	54
59	2773	237	233	58	4.1	13.70	Buckingham	49	female	62	189	large	130	90	NA	NA	43	47
61	2775	296	262	60	4.9	10.93	Buckingham	74	female	63	183	large	159	99	160	103	42	48
63	2778	443	185	23	19.3	14.31	Buckingham	51	female	70	235	medium	158	98	148	88	43	48
68	2791	213	203	75	2.8	11.41	Buckingham	71	female	63	165	medium	150	80	145	80	34	42
70	2794	232	184	114	2.0	8.40	Buckingham	91	female	61	127	<NA>	170	82	NA	NA	35	38
76	4000	209	113	65	3.2	7.44	Buckingham	76	female	60	143	large	156	78	144	76	35	40
87	4760	218	182	54	4.0	10.55	Louisa	51	female	NA	215	large	139	69	NA	NA	42	53
92	4771	249	197	44	5.7	9.17	Louisa	64	female	63	159	medium	151	85	148	79	33	41
98	4787	245	120	39	6.3	7.79	Louisa	47	female	63	156	medium	142	102	156	106	35	39
105	4796	209	176	55	3.8	9.77	Louisa	57	female	61	150	small	115	68	NA	NA	36	39
122	4841	195	108	46	4.2	8.45	Louisa	59	female	67	172	small	150	102	150	100	38	43
124	4843	215	119	44	3.9	9.76	Louisa	63	female	63	158	medium	160	68	158	74	34	42
172	15276	215	110	36	6.0	9.82	Louisa	51	female	67	282	medium	142	78	136	84	52	59
177	15501	193	248	24	8.0	7.14	Buckingham	59	female	66	189	medium	140	90	NA	NA	38	45
178	15502	267	133	34	7.9	8.81	Louisa	40	female	59	204	small	118	69	NA	NA	40	47
181	15514	246	104	62	4.0	7.40	Louisa	66	female	66	189	medium	200	94	208	90	45	46
199	15761	283	145	39	7.3	8.25	Buckingham	63	female	61	200	medium	190	110	170	90	44	48
210	15797	211	225	29	7.3	10.09	Buckingham	61	female	63	144	medium	190	100	170	86	40	42
213	15800	342	251	48	7.1	12.67	Buckingham	63	female	65	201	medium	178	88	160	82	45	46
235	17752	207	187	46	4.5	8.57	Louisa	44	female	67	201	large	150	74	146	76	46	49
249	17781	237	118	45	5.3	7.51	Buckingham	73	female	64	174	large	162	75	NA	NA	38	44
257	17805	235	109	59	4.0	7.48	Buckingham	62	female	63	290	large	175	80	152	102	55	62
302	20335	190	228	57	3.3	9.28	Louisa	43	female	65	198	small	110	64	NA	NA	40	49
329	21254	191	155	58	3.3	8.06	Buckingham	31	female	62	237	large	140	87	NA	NA	53	56
363	40774	203	90	51	4.0	14.94	Louisa	60	female	59	123	medium	130	72	NA	NA	36	41
364	40775	219	173	31	7.1	10.16	Louisa	56	female	65	197	small	100	50	NA	NA	41	50
365	40784	226	279	52	4.3	10.07	Louisa	84	female	60	192	small	144	88	146	82	41	48
369	40789	252	161	87	2.9	11.18	Louisa	80	female	62	162	small	160	100	160	100	44	41

8. FIND OUT THE DETAILS OF PATIENTS WHO ARE NOT FROM LOUSIA.

```
> v=data.frame(x)
> v=subset(v,location != "Louisa")
> v
```

	id	chol	stab.glu	hdl	ratio	glyhb	location	age	gender	height	weight	frame	bp.1s	bp.1d	bp.2s	bp.2d	waist	hip
1	1000	203	82	56	3.6	4.31	Buckingham	46	female	62	121	medium	118	59	NA	NA	29	38
2	1001	165	97	24	6.9	4.44	Buckingham	29	female	64	218	large	112	68	NA	NA	46	48
3	1002	228	92	37	6.2	4.64	Buckingham	58	female	61	256	large	190	92	185	92	49	57
4	1003	78	93	12	6.5	4.63	Buckingham	67	male	67	119	large	110	50	NA	NA	33	38
5	1005	249	90	28	8.9	7.72	Buckingham	64	male	68	183	medium	138	80	NA	NA	44	41
6	1008	248	94	69	3.6	4.81	Buckingham	34	male	71	190	large	132	86	NA	NA	36	42
7	1011	195	92	41	4.8	4.84	Buckingham	30	male	69	191	medium	161	112	161	112	46	49
8	1015	227	75	44	5.2	3.94	Buckingham	37	male	59	170	medium	NA	NA	NA	NA	34	39
9	1016	177	87	49	3.6	4.84	Buckingham	45	male	69	166	large	160	80	128	86	34	40
10	1022	263	89	40	6.6	5.78	Buckingham	55	female	63	202	small	108	72	NA	NA	45	50
20	1250	196	206	41	4.8	11.24	Buckingham	62	female	65	196	large	178	90	NA	NA	46	51
21	1252	186	97	50	3.7	6.49	Buckingham	70	male	67	178	large	148	88	148	84	42	41
22	1253	234	65	76	3.1	4.67	Buckingham	47	male	67	230	large	137	100	149	110	45	46
23	1254	203	299	43	4.7	12.74	Buckingham	38	female	69	288	large	136	83	NA	NA	48	55
24	1256	281	92	41	6.9	5.56	Buckingham	66	female	62	185	large	158	88	160	88	48	44
25	1271	228	66	45	5.1	4.61	Buckingham	24	female	61	113	medium	100	70	110	70	33	38
26	1277	179	80	92	1.9	4.18	Buckingham	41	female	72	118	small	144	112	NA	NA	28	36
27	1280	232	87	30	7.7	5.10	Buckingham	37	male	68	252	large	140	95	NA	NA	43	47
28	1281	NA	74	NA	NA	4.28	Buckingham	48	male	68	100	small	120	85	NA	NA	27	33
29	1282	254	84	52	4.9	4.52	Buckingham	43	female	62	145	medium	125	70	NA	NA	31	38
31	1301	177	101	36	4.9	5.11	Buckingham	42	female	65	174	medium	146	94	139	89	37	40
32	1303	182	85	43	4.2	4.47	Buckingham	52	male	68	139	large	130	90	NA	NA	29	35
33	1304	265	330	34	7.8	15.52	Buckingham	61	male	74	191	medium	170	88	168	80	39	41
34	1305	182	85	37	4.9	5.66	Buckingham	61	female	69	174	medium	176	86	180	90	49	43
35	1309	199	87	63	3.2	3.67	Buckingham	25	male	66	118	medium	120	78	NA	NA	32	34
36	1312	183	81	60	3.1	4.03	Buckingham	47	female	66	186	medium	140	97	NA	NA	39	44
37	1313	194	86	67	2.9	2.68	Buckingham	35	male	66	159	medium	115	64	NA	NA	31	35
38	1314	190	107	32	5.9	3.56	Buckingham	46	male	72	205	medium	NA	NA	NA	NA	46	49
39	1315	173	80	57	3.0	6.21	Buckingham	57	male	71	145	medium	124	64	NA	NA	31	36
40	1316	182	206	43	4.2	7.91	Buckingham	70	male	69	214	large	158	90	160	96	45	48
41	1317	136	81	51	2.7	4.58	Buckingham	22	female	66	160	large	105	85	NA	NA	35	40
42	1321	218	68	46	4.7	3.89	Buckingham	52	female	62	170	medium	142	79	NA	NA	40	43
43	1323	225	83	42	5.4	4.38	Buckingham	36	male	67	192	large	149	89	136	88	40	42
44	1326	262	84	38	6.9	NA	Buckingham	43	male	75	253	large	124	80	NA	NA	43	49
45	1500	213	76	40	5.3	5.96	Buckingham	72	female	59	137	large	130	60	NA	NA	40	40
46	1501	243	52	59	4.1	4.41	Buckingham	37	female	64	233	medium	110	82	NA	NA	49	57
47	1502	148	193	14	10.6	6.14	Buckingham	54	female	67	165	medium	140	65	NA	NA	42	42
48	2004	128	223	24	5.3	10.90	Buckingham	60	male	67	196	medium	110	68	NA	NA	42	43

	time.ppn	resut
1	720	not diabetic
2	360	not diabetic
3	180	not diabetic
4	480	not diabetic
5	300	diabetic
6	195	not diabetic
7	720	not diabetic
8	1020	not diabetic
9	300	not diabetic
10	240	not diabetic
11	300	not diabetic
12	90	not diabetic
13	720	not diabetic
14	60	not diabetic
15	225	not diabetic
16	240	not diabetic
17	180	not diabetic
18	1440	not diabetic
19	120	not diabetic
20	540	diabetic
21	1020	not diabetic
22	480	not diabetic
23	240	diabetic
24	285	not diabetic
25	210	not diabetic
26	780	not diabetic
27	420	not diabetic
28	510	not diabetic
29	720	not diabetic
30	450	not diabetic
31	540	not diabetic
32	780	not diabetic
33	225	diabetic
34	330	not diabetic
35	720	not diabetic
36	780	not diabetic
37	720	not diabetic
38	240	not diabetic
39	30	not diabetic
40	840	diabetic
41	720	not diabetic
42	720	not diabetic
43	30	not diabetic
44	300	<NA>

10. WHICH FEMALE SUBJECTS FROM BUCKINGHAM ARE UNDER THE AGE OF 25?

```
> x=read.csv("Diabetes.csv")
> c=data.frame(x)
> c=subset(c,gender=="female" & location=="Buckingham" & age < 25)
> c
       id chol stab.glu hdl ratio glyhb   location age gender height weight  frame bp.1s bp.1d bp.2s bp.2d
25   1271  228       66  45   5.1  4.61 Buckingham  24 female     61    113 medium   100    70   110    70
41   1317  136       81  51   2.7  4.58 Buckingham  22 female     66    160  large   105    85    NA    NA
56   2763  193      106  63   3.1  6.35 Buckingham  20 female     68    274  small   165   110   153   100
67   2787  223       75  85   2.6  4.25 Buckingham  22 female     62    137 medium   120    70    NA    NA
72   3250  164       86  40   4.1  5.23 Buckingham  23 female     69    245  large   126    75    NA    NA
73   3750  170       69  64   2.7  4.39 Buckingham  20 female     64    161 medium   108    70    NA    NA
79   4506  217       81  60   3.6  3.93 Buckingham  22 female     71    223 medium   120    75    NA    NA
126 10001  132       99  34   3.9  4.01 Buckingham  21 female     65    169  large   112    62    NA    NA
169 15264  187       84  64   2.9  4.40 Buckingham  21 female     63    158  small   138    88    NA    NA
251 17790  146       79  41   3.6  4.76 Buckingham  19 female     60    135 medium   108    58    NA    NA
255 17800  149       77  49   3.0  4.50 Buckingham  20 female     62    115  small   105    82    NA    NA
275 20260  179       75  36   5.0  4.75 Buckingham  23 female     65    183 medium   120    80    NA    NA
283 20279  147       78  42   3.5  4.67 Buckingham  23 female     61    185   <NA>   127    71    NA    NA
    waist hip time.ppn
25     33  38      210
41     35  40      720
56     49  58       60
67     28  35      960
72     44  47      420
73     37  40      120
79     46  50      210
126    39  43      180
169    39  43      180
251    33  40      240
255    31  37      720
275    43  45      720
283    43  47      600
> nrow(c)
[1] 13
>
```

11. WHAT IS THEIR AVERAGE GLYHB?

```
> avg=mean(c$glyhb)
> avg
[1] 4.648462
>
>
```

12. ARE ANY OF THEM DIABETIC?

```
> g=subset(c,glyhb>7)
> nrow(g)
[1] 0
>
>
```

13. FIND OUT EACH COLUMN TYPE IN THE DATAFRAME

```
>
> names(Diabetes)
 [1] "id"       "chol"     "stab.glu" "hdl"      "ratio"    "glyhb"    "location" "age"      "gender"
[10] "height"   "weight"   "frame"    "bp.1s"    "bp.1d"    "bp.2s"    "bp.2d"    "waist"    "hip"
[19] "time.ppn"
>
>
```

```
> class(Diabetes$age)
[1] "numeric"
>
> class(Diabetes$id)
[1] "numeric"
> class(Diabetes$chol)
[1] "numeric"
> class(Diabetes$stab.glu)
[1] "numeric"
> class(Diabetes$hd1)
[1] "NULL"
```

```
> class(Diabetes$glyhb)
[1] "numeric"
> class(Diabetes$age)
[1] "numeric"
> class(Diabetes$gender)
[1] "character"
> class(Diabetes$height)
[1] "numeric"
> class(Diabetes$weight)
[1] "numeric"
> class(Diabetes$frame)
[1] "character"
> class(Diabetes$hip)
[1] "numeric"
> class(Diabetes$waist)
[1] "numeric"
>
```

14. PRODUCE THE SUMMARY OF THE DATAFRAME.

```
> summary(Diabetes)
       id             chol          stab.glu          hdl             ratio           glyhb
 Min.   : 1000   Min.   : 78.0   Min.   : 48.0   Min.   : 12.00   Min.   : 1.500   Min.   : 2.68
 1st Qu.: 4792   1st Qu.:179.0   1st Qu.: 81.0   1st Qu.: 38.00   1st Qu.: 3.200   1st Qu.: 4.38
 Median :15766   Median :204.0   Median : 89.0   Median : 46.00   Median : 4.200   Median : 4.84
 Mean   :15978   Mean   :207.8   Mean   :106.7   Mean   : 50.45   Mean   : 4.522   Mean   : 5.59
 3rd Qu.:20336   3rd Qu.:230.0   3rd Qu.:106.0   3rd Qu.: 59.00   3rd Qu.: 5.400   3rd Qu.: 5.60
 Max.   :41756   Max.   :443.0   Max.   :385.0   Max.   :120.00   Max.   :19.300   Max.   :16.11
                 NA's   :1                       NA's   :1        NA's   :1        NA's   :13
   location              age          gender              height          weight         frame
 Length:403         Min.   :19.00   Length:403         Min.   :52.00   Min.   : 99.0   Length:403
 Class :character   1st Qu.:34.00   Class :character   1st Qu.:63.00   1st Qu.:151.0   Class :character
 Mode  :character   Median :45.00   Mode  :character   Median :66.00   Median :172.5   Mode  :character
                    Mean   :46.85                      Mean   :66.02   Mean   :177.6
                    3rd Qu.:60.00                      3rd Qu.:69.00   3rd Qu.:200.0
                    Max.   :92.00                      Max.   :76.00   Max.   :325.0
                                                       NA's   :5       NA's   :1
     bp.1s           bp.1d           bp.2s           bp.2d            waist           hip
 Min.   : 90.0   Min.   : 48.00   Min.   :110.0   Min.   : 60.00   Min.   :26.0   Min.   :30.00
 1st Qu.:121.2   1st Qu.: 75.00   1st Qu.:138.0   1st Qu.: 84.00   1st Qu.:33.0   1st Qu.:39.00
 Median :136.0   Median : 82.00   Median :149.0   Median : 92.00   Median :37.0   Median :42.00
 Mean   :136.9   Mean   : 83.32   Mean   :152.4   Mean   : 92.52   Mean   :37.9   Mean   :43.04
 3rd Qu.:146.8   3rd Qu.: 90.00   3rd Qu.:161.0   3rd Qu.:100.00   3rd Qu.:41.0   3rd Qu.:46.00
 Max.   :250.0   Max.   :124.00   Max.   :238.0   Max.   :124.00   Max.   :56.0   Max.   :64.00
 NA's   :5       NA's   :5        NA's   :262     NA's   :262      NA's   :2      NA's   :2
    time.ppn
 Min.   :   5.0
 1st Qu.:  90.0
 Median : 240.0
 Mean   : 341.2
 3rd Qu.: 517.5
 Max.   :1560.0
 NA's   :3
>
```