Q2)
A)

		Mean	S.D	Median	Mode(Frequency)
Sepsis	v40	5.567	8.297	3.1	0(11370)
LBW	v42	18.438	13.917	17.5	0(5736)
Pneumonia	v43	7.148	10.851	4.2	0(8219)
Diarrhoea	v44	1.686	6.625	0	0(23610)
Fever	v45	3.822	9.731	0.9	0(15336)
Measles	v46	0.200	3.135	0	0(39785)

C)
Both season wise and year wise measles is very less. The values has moore frequency towards 0.
Season wise and year wise LBW is very high over the years.
Fever and diarrhea percentage has been decreased over the year

D)

1)
Correlation coefficient.

	gdp	beds	taps
Sepsis (v40)	0.07253104	0.09956246	-0.07952019
Lbw (v42)	0.2085826	0.03309288	0.1731325
Pneumonia (v43)	-0.2111364	-0.1078061	-0.1660648
Diarrhoea (v44)	-0.1188016	-0.06947723	-0.0890154
Fever (v45)	-0.1457653	-0.03308626	-0.1503526
Measles (v46)	0.002313472	0.038661	-0.02905419

2)

	Cash	Cereal	Horticulture	Pulse	Oilseed	Coarse Cereal
Sepsis	0.0484357 7	0.051862 3	0.00128417 1	-0.013800 58	0.0231605 1	0.0269831 5
lbw	-0.0542813 3	-0.10957 3	-0.0193595 2	-0.064449 86	-0.0338992 3	-0.1163117
Pneumonia	-0.0518352 6	-0.05933 757	-0.0153491 8	0.016870 85	-0.0458380 4	-0.046325 88
Diarrhoea	-0.0043379 67	0.005143 028	0.00928906 7	0.027848 65	-0.0142752 1	0.0114107 9
Fever	-0.005679 235	-0.021162 68	0.02564181	0.022991 8	-0.0436155 2	0.0208480 3
Measles	0.0020038 57	0.002018 849	0.01515055	0.006526 089	-0.0018056 14	0.0049943 32

3)

	Cash	Cereal	Horticulture	Pulse	Oilseed	CoarseCereal
Sepsis	-0.02799 281	-0.00110 3857	-0.00815 3288	-0.03010 738	-0.03112 256	-0.04094 112
lbw	-0.00232 076	0.002876 735	0.023825 48	0.008952 177	0.021652 34	-0.00217 0664
Pneumonia	0.015430 62	-0.00551 845	-0.00976 564	-0.00686 222	-0.02090 735	-0.01457 262

Diarrhoea	0.02712008	-0.002976646	-0.009534686	-0.01520495	-0.005761952	-0.01397946
Fever	0.02680101	-0.004713885	-0.01319386	-0.01863601	-0.01121046	-0.01940688
Measles	0.007647837	0.002153245	-0.003197117	-0.006950354	-0.004053135	-0.009447603

Q3)

A)

Sepsis and gdp, beds, taps

```
Call:
lm(formula = data$v40 ~ ., data = df1)

Residuals:
   Min     1Q Median     3Q    Max
-7.745 -4.608 -2.179  1.797 94.981

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  5.126e+00  7.050e-02  72.714  < 2e-16 ***
gdp          7.093e-07  1.821e-07   3.895 9.85e-05 ***
beds         6.756e-06  7.361e-07   9.178  < 2e-16 ***
taps        -2.927e-02  1.709e-03 -17.119  < 2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.195 on 42710 degrees of freedom
  (27858 observations deleted due to missingness)
Multiple R-squared:  0.01732,   Adjusted R-squared:  0.01725
F-statistic:   251 on 3 and 42710 DF,  p-value: < 2.2e-16
```

B)

Sepsis and gdp, beds, taps, index for Cash crop

```
Call:
lm(formula = d$v40 ~ ., data = df)

Residuals:
   Min     1Q Median     3Q    Max
-8.659 -4.457 -2.006  2.010 94.269

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  5.084e+00  1.918e-01  26.499  < 2e-16 ***
gdp          2.024e-06  4.704e-07   4.302 1.72e-05 ***
beds         3.939e-06  1.959e-06   2.011   0.0444 *
taps        -4.095e-02  4.353e-03  -9.408  < 2e-16 ***
index        4.939e-03  3.069e-03   1.610   0.1076
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 7.606 on 5826 degrees of freedom
  (3697 observations deleted due to missingness)
Multiple R-squared:  0.02932,   Adjusted R-squared:  0.02865
F-statistic:    44 on 4 and 5826 DF,  p-value: < 2.2e-16
```

Sepsis and gdp, beds, taps, index for Cereal crop

```
Call:
lm(formula = d$v40 ~ ., data = df)

Residuals:
   Min     1Q Median     3Q    Max
-8.225 -4.805 -2.372  1.827 95.487

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  4.460e+00  2.300e-01  19.386  < 2e-16 ***
gdp          2.105e-07  4.295e-07   0.490 0.624094
beds         6.451e-06  1.773e-06   3.638 0.000277 ***
taps        -2.507e-02  4.180e-03  -5.998 2.08e-09 ***
index        3.738e-01  7.615e-02   4.909 9.34e-07 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.526 on 8375 degrees of freedom
  (5889 observations deleted due to missingness)
Multiple R-squared:  0.01303,   Adjusted R-squared:  0.01256
F-statistic: 27.65 on 4 and 8375 DF,  p-value: < 2.2e-16
```

Sepsis and gdp, beds, taps, index for Oilseed crops

```
Call:
lm(formula = d$v40 ~ ., data = df)

Residuals:
    Min      1Q  Median      3Q     Max
-14.447  -4.436  -2.036   1.907  94.783

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  5.103e+00  1.840e-01  27.737  < 2e-16 ***
gdp          1.680e-07  4.159e-07   0.404  0.68625
beds         7.369e-06  1.764e-06   4.177 2.99e-05 ***
taps        -3.075e-02  4.074e-03  -7.549 4.95e-14 ***
index        2.405e-01  7.635e-02   3.151  0.00164 **
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 7.884 on 6858 degrees of freedom
  (4747 observations deleted due to missingness)
Multiple R-squared:  0.01835,   Adjusted R-squared:  0.01778
F-statistic: 32.05 on 4 and 6858 DF,  p-value: < 2.2e-16
```

Sepsis and gdp, beds, taps, index for Pulse crops

```
Call:
lm(formula = d$v40 ~ ., data = df)

Residuals:
   Min     1Q Median     3Q    Max
-7.568 -4.677 -2.155  1.856 94.541

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  5.665e+00  1.933e-01  29.303  < 2e-16 ***
gdp          2.296e-07  4.408e-07   0.521 0.602520
beds         6.076e-06  1.753e-06   3.466 0.000531 ***
taps        -3.268e-02  4.015e-03  -8.140 4.56e-16 ***
index       -6.733e-02  1.101e-01  -0.612 0.540867
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.403 on 8000 degrees of freedom
  (5671 observations deleted due to missingness)
Multiple R-squared:  0.01563,   Adjusted R-squared:  0.01514
F-statistic: 31.76 on 4 and 8000 DF,  p-value: < 2.2e-16
```

Sepsis and gdp, beds, taps, index for Horticulture crops

```
Call:
lm(formula = d$v40 ~ ., data = df)

Residuals:
   Min     1Q Median     3Q    Max
-7.968 -4.593 -2.219  1.797 95.313

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  4.931e+00  1.838e-01  26.823  < 2e-16 ***
gdp          7.313e-07  4.767e-07   1.534   0.1250
beds         8.196e-06  1.727e-06   4.747 2.11e-06 ***
taps        -2.189e-02  4.245e-03  -5.157 2.58e-07 ***
index       -1.866e-02  1.084e-02  -1.722   0.0851 .
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.359 on 7289 degrees of freedom
  (5300 observations deleted due to missingness)
Multiple R-squared:  0.018,     Adjusted R-squared:  0.01747
F-statistic: 33.41 on 4 and 7289 DF,  p-value: < 2.2e-16
```

Sepsis and gdp, beds, taps, index for Coarse Cereal crops

```
Call:
lm(formula = d$v40 ~ ., data = df)

Residuals:
   Min     1Q Median     3Q    Max
-8.286 -4.399 -2.008  1.725 94.908

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  5.186e+00  2.616e-01  19.824   <2e-16 ***
gdp          8.178e-07  4.842e-07   1.689   0.0913 .
beds         4.474e-06  2.014e-06   2.221   0.0264 *
taps        -4.024e-02  4.747e-03  -8.475   <2e-16 ***
index        2.977e-01  1.282e-01   2.321   0.0203 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.349 on 5287 degrees of freedom
  (3603 observations deleted due to missingness)
Multiple R-squared:  0.0228,    Adjusted R-squared:  0.02206
F-statistic: 30.84 on 4 and 5287 DF,  p-value: < 2.2e-16
```

C)

```
Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  5.129e+00  7.149e-02  71.739  < 2e-16 ***
gdp          6.307e-07  1.824e-07   3.458 0.000544 ***
beds         6.664e-06  7.395e-07   9.011  < 2e-16 ***
taps        -2.809e-02  1.701e-03 -16.509  < 2e-16 ***
cash_i       1.045e-03  9.795e-03   0.107 0.915012
cereal_i    -5.652e-06  7.384e-05  -0.077 0.938985
cc_i        -5.209e-03  4.402e-02  -0.118 0.905803
pulse_i      5.377e-02  4.591e-02   1.171 0.241489
oil_i       -4.398e-02  3.094e-02  -1.422 0.155117
hort_i       3.829e-03  8.283e-03   0.462 0.643912
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.23 on 43245 degrees of freedom
Multiple R-squared:  0.01638,    Adjusted R-squared:  0.01618
F-statistic: 80.02 on 9 and 43245 DF,  p-value: < 2.2e-16
```

D)

Sepsis and gdp, beds, taps, growth rate of Cash

```
Call:
lm(formula = d$v40 ~ ., data = df)

Residuals:
   Min     1Q Median     3Q    Max
-8.869 -4.585 -2.114  2.057 94.362

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  5.120e+00  2.125e-01  24.095  < 2e-16 ***
gdp          2.417e-06  5.364e-07   4.505 6.79e-06 ***
beds         3.422e-06  2.263e-06   1.512    0.131
taps        -3.972e-02  5.141e-03  -7.725 1.37e-14 ***
g_index     -6.002e-02  4.269e-02  -1.406    0.160
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 7.793 on 4496 degrees of freedom
  (2978 observations deleted due to missingness)
Multiple R-squared:  0.02993,   Adjusted R-squared:  0.02907
F-statistic: 34.68 on 4 and 4496 DF,  p-value: < 2.2e-16
```

Sepsis and gdp, beds, taps, growth rate of Cereal

```
Call:
lm(formula = d$v40 ~ ., data = df)

Residuals:
   Min     1Q Median     3Q    Max
-7.283 -4.902 -2.446  1.869 94.581

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  5.134e+00  1.796e-01  28.588  < 2e-16 ***
gdp          3.937e-07  4.674e-07   0.842  0.39960
beds         6.219e-06  1.928e-06   3.225  0.00127 **
taps        -1.925e-02  4.570e-03  -4.212 2.57e-05 ***
g_index     -4.777e-06  7.638e-05  -0.063  0.95013
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.512 on 6886 degrees of freedom
  (4991 observations deleted due to missingness)
Multiple R-squared:  0.009435,  Adjusted R-squared:  0.00886
F-statistic:  16.4 on 4 and 6886 DF,  p-value: 2.237e-13
```

Sepsis and gdp, beds, taps, growth rate of Oilseed

```
Call:
lm(formula = d$v40 ~ ., data = df)

Residuals:
    Min      1Q  Median      3Q     Max
-17.008  -4.525  -2.152   2.040  94.026

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  5.015e+00  2.007e-01  24.994  < 2e-16 ***
gdp          5.836e-07  4.529e-07   1.289 0.197588
beds         5.455e-06  1.936e-06   2.817 0.004859 **
taps        -2.979e-02  4.541e-03  -6.559  5.9e-11 ***
index        2.895e-01  8.692e-02   3.331 0.000872 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 7.661 on 5396 degrees of freedom
  (3862 observations deleted due to missingness)
Multiple R-squared:  0.01738,   Adjusted R-squared:  0.01666
F-statistic: 23.87 on 4 and 5396 DF,  p-value: < 2.2e-16
```

Sepsis and gdp, beds, taps, growth rate of Pulse

```
Call:
lm(formula = d$v40 ~ ., data = df)

Residuals:
   Min     1Q Median     3Q    Max
-7.464 -4.795 -2.262  1.936 94.184

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  5.562e+00  2.161e-01  25.737  < 2e-16 ***
gdp          6.677e-07  4.792e-07   1.393   0.1635
beds         4.405e-06  1.914e-06   2.301   0.0214 *
taps        -3.296e-02  4.466e-03  -7.381 1.77e-13 ***
index       -1.857e-02  1.268e-01  -0.146   0.8836
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.302 on 6460 degrees of freedom
  (4790 observations deleted due to missingness)
Multiple R-squared:  0.01516,   Adjusted R-squared:  0.01455
F-statistic: 24.86 on 4 and 6460 DF,  p-value: < 2.2e-16
```

Sepsis and gdp, beds, taps, growth rate of Horticulture

```
Call:
lm(formula = d$v40 ~ ., data = df)

Residuals:
   Min     1Q Median     3Q    Max
-8.385 -4.639 -2.330  1.951 95.070

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  4.940e+00  2.099e-01  23.538  < 2e-16 ***
gdp          1.564e-06  5.684e-07   2.751  0.00595 **
beds         6.191e-06  1.984e-06   3.120  0.00182 **
taps        -2.220e-02  4.967e-03  -4.469 8.02e-06 ***
index       -3.652e-02  1.321e-02  -2.764  0.00573 **
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.363 on 5741 degrees of freedom
  (4413 observations deleted due to missingness)
Multiple R-squared:  0.01967,   Adjusted R-squared:  0.01899
F-statistic:  28.8 on 4 and 5741 DF,  p-value: < 2.2e-16
```

Sepsis and gdp, beds, taps, growth rate of Coarse Cereal

```
Call:
lm(formula = d$v40 ~ ., data = df)

Residuals:
   Min     1Q Median     3Q    Max
-8.205 -4.566 -2.110  1.901 94.230

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  5.074e+00  2.961e-01  17.140  < 2e-16 ***
gdp          9.966e-07  5.345e-07   1.864   0.0623 .
beds         3.814e-06  2.222e-06   1.717   0.0861 .
taps        -3.803e-02  5.386e-03  -7.061 1.94e-12 ***
index        3.076e-01  1.458e-01   2.110   0.0349 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.236 on 4076 degrees of freedom
  (3061 observations deleted due to missingness)
Multiple R-squared:  0.02188,   Adjusted R-squared:  0.02092
F-statistic: 22.79 on 4 and 4076 DF,  p-value: < 2.2e-16
```

E)

```
Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  5.129e+00  7.149e-02  71.739  < 2e-16 ***
gdp          6.307e-07  1.824e-07   3.458 0.000544 ***
beds         6.664e-06  7.395e-07   9.011  < 2e-16 ***
taps        -2.809e-02  1.701e-03 -16.509  < 2e-16 ***
cash_i       1.045e-03  9.795e-03   0.107 0.915012
cereal_i    -5.652e-06  7.384e-05  -0.077 0.938985
cc_i        -5.209e-03  4.402e-02  -0.118 0.905803
pulse_i      5.377e-02  4.591e-02   1.171 0.241489
oil_i       -4.398e-02  3.094e-02  -1.422 0.155117
hort_i       3.829e-03  8.283e-03   0.462 0.643912
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.23 on 43245 degrees of freedom
Multiple R-squared:  0.01638,   Adjusted R-squared:  0.01618
F-statistic: 80.02 on 9 and 43245 DF,  p-value: < 2.2e-16
```

F)

Sepsis and gdp, beds, yeild index , taps for Cash Crops

```
Call:
lm(formula = d$v40 ~ ., data = df1)

Residuals:
   Min     1Q Median     3Q    Max
-7.452 -4.727 -2.182  2.174 95.158

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -1.58627    0.93265  -1.701  0.08905 .
l_gdp        0.03485    0.07548   0.462  0.64434
l_beds       0.73737    0.08256   8.931  < 2e-16 ***
l_taps      -0.19441    0.06989  -2.782  0.00543 **
l_index     -0.02107    0.07021  -0.300  0.76407
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 7.87 on 4318 degrees of freedom
  (3156 observations deleted due to missingness)
Multiple R-squared:  0.02252,   Adjusted R-squared:  0.02162
F-statistic: 24.87 on 4 and 4318 DF,  p-value: < 2.2e-16
```

Sepsis and gdp, beds, yeild index , taps for Cereal Crops

```
Call:
lm(formula = d$v40 ~ ., data = df1)

Residuals:
   Min     1Q Median     3Q    Max
-7.103 -5.008 -2.475  1.859 94.807

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  1.28500    0.79308   1.620    0.105
l_gdp       -0.04030    0.06136  -0.657    0.511
l_beds       0.40820    0.07100   5.749 9.37e-09 ***
l_taps      -0.06689    0.06091  -1.098    0.272
l_index      0.95557    0.18256   5.234 1.71e-07 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.522 on 6658 degrees of freedom
  (5219 observations deleted due to missingness)
Multiple R-squared:  0.009512,  Adjusted R-squared:  0.008917
F-statistic: 15.99 on 4 and 6658 DF,  p-value: 4.962e-13
```

Sepsis and gdp, beds, yeild index , taps for Oilseed Crops

```
Call:
lm(formula = d$v40 ~ ., data = df1)

Residuals:
   Min     1Q Median     3Q    Max
-8.381 -4.860 -2.205  2.039 94.483

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  2.42735    0.78760   3.082  0.00207 **
l_gdp       -0.07059    0.06429  -1.098  0.27226
l_beds       0.42937    0.07193   5.969 2.54e-09 ***
l_taps      -0.18066    0.06304  -2.866  0.00418 **
l_index      0.77053    0.15953   4.830 1.40e-06 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 7.693 on 5211 degrees of freedom
  (4047 observations deleted due to missingness)
Multiple R-squared:  0.01363,   Adjusted R-squared:  0.01287
F-statistic:    18 on 4 and 5211 DF,  p-value: 1.091e-14
```

Sepsis and gdp, beds, yeild index , taps for Pulse Crops

```
Call:
lm(formula = d$v40 ~ ., data = df1)

Residuals:
   Min     1Q Median     3Q    Max
-7.074 -4.971 -2.484  2.051 94.769

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  2.55877    0.80654   3.173  0.00152 **
l_gdp       -0.13069    0.06414  -2.037  0.04165 *
l_beds       0.48496    0.07173   6.761 1.49e-11 ***
l_taps      -0.17757    0.06187  -2.870  0.00412 **
l_index     -0.06455    0.17286  -0.373  0.70883
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.36 on 6248 degrees of freedom
  (5002 observations deleted due to missingness)
Multiple R-squared:  0.007686,  Adjusted R-squared:  0.007051
F-statistic:  12.1 on 4 and 6248 DF,  p-value: 8.504e-10
```

Sepsis and gdp, beds, yeild index , taps for Horticulture Crops

```
Call:
lm(formula = d$v40 ~ ., data = df1)

Residuals:
   Min     1Q Median     3Q    Max
-7.264 -5.266 -2.557  1.884 95.222

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  0.90404    0.85723   1.055    0.292
l_gdp       -0.04737    0.06703  -0.707    0.480
l_beds       0.52943    0.07760   6.823  9.9e-12 ***
l_taps       0.04169    0.06455   0.646    0.518
l_index     -0.08436    0.07820  -1.079    0.281
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.427 on 5525 degrees of freedom
  (4629 observations deleted due to missingness)
Multiple R-squared:  0.009864,  Adjusted R-squared:  0.009147
F-statistic: 13.76 on 4 and 5525 DF,  p-value: 3.618e-11
```

Sepsis and gdp, beds, yeild index , taps for Coarse Cereal Crops

```
Call:
lm(formula = d$v40 ~ ., data = df1)

Residuals:
   Min     1Q Median     3Q    Max
-7.608 -4.908 -2.311  1.918 94.365

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  1.74399    1.00609   1.733 0.083096 .
l_gdp        0.02748    0.07968   0.345 0.730186
l_beds       0.39883    0.09079   4.393 1.15e-05 ***
l_taps      -0.30245    0.07859  -3.849 0.000121 ***
l_index      0.58763    0.17566   3.345 0.000830 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.247 on 4002 degrees of freedom
  (3135 observations deleted due to missingness)
Multiple R-squared:  0.01117,   Adjusted R-squared:  0.01018
F-statistic:  11.3 on 4 and 4002 DF,  p-value: 4.033e-09
```

G)

```
Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  5.129e+00  7.149e-02  71.739  < 2e-16 ***
gdp          6.307e-07  1.824e-07   3.458 0.000544 ***
beds         6.664e-06  7.395e-07   9.011  < 2e-16 ***
taps        -2.809e-02  1.701e-03 -16.509  < 2e-16 ***
cash_i       1.045e-03  9.795e-03   0.107 0.915012
cereal_i    -5.652e-06  7.384e-05  -0.077 0.938985
cc_i        -5.209e-03  4.402e-02  -0.118 0.905803
pulse_i      5.377e-02  4.591e-02   1.171 0.241489
oil_i       -4.398e-02  3.094e-02  -1.422 0.155117
hort_i       3.829e-03  8.283e-03   0.462 0.643912
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.23 on 43245 degrees of freedom
Multiple R-squared:  0.01638,   Adjusted R-squared:  0.01618
F-statistic: 80.02 on 9 and 43245 DF,  p-value: < 2.2e-16
```

6)
Yes the relationship yield growth and health indicators is similar acrros crop categories when health indicators are ussed to access the quality of the when health indicators are used to access the quality of soil, weather, water quality and tap water number of beds in thrie hospitals and the gdp of that particular area(state) of the farmers hence that irectly indicates the their potential in farming and farming directly gives the output of good yield and weather directly depends on the health of the people and also agriculture.

5)
The main issue when all crop categories are together in the models the main key here would be the crop cultivation parameters like some crops need heavy rains, few need mild rains, few don't need any rains and few crops would spoil if it rains on it. Also when there are heavy rains places would drone into rains and many people would get hospitailsed and so if many are hospitalised there should be beds in hospital to manage the load. Including all crops together in the models would be a very bad model or fail model. Some would need the health indicators to be better and some crops might need less population to share the tap water.

4)

In the regression A v40 is directly compared with gdp, beds, taps.

	v40	gdp	beds	tap
v40	1.00000000	0.07140552	0.101876324	-0.082098351
gdp	0.07140552	1.00000000	0.786907402	0.231901089
beds	0.10187632	0.78690740	1.000000000	-0.008723732
tap	-0.08209835	0.23190109	-0.008723732	1.000000000

This is correlation table for the A and the R square value of the part A is 0.017 that means only the model is explanatory only around 1.7% which very less.

	v40	gdp	beds	tap	index
v40	1.00000000	0.06287980	0.09500699	-0.087412620	0.017597328
gdp	0.06287980	1.00000000	0.78103131	0.220060023	0.058600384
beds	0.09500699	0.78103131	1.00000000	-0.020932537	0.065101482
tap	-0.08741262	0.22006002	-0.02093254	1.000000000	0.008047035
index	0.01759733	0.05860038	0.06510148	0.008047035	1.000000000

Correlation coefficient of the yield index and the health indicator.

	l_gdp	l_beds	l_taps	l_index
l_gdp	1.00000000	0.41698584	0.169554429	-0.021527489
l_beds	0.41698584	1.00000000	0.220905076	0.029178434
l_taps	0.16955443	0.22090508	1.000000000	0.002529755
l_index	-0.02152749	0.02917843	0.002529755	1.000000000

Correaltion coefficent of the log of variables.

	v40	gdp	beds	tap	growth_rate
v40	1.00000000	0.07126208	0.09733925	-0.07993531	NaN
gdp	0.07126208	1.00000000	0.78152521	0.22734902	NaN
beds	0.09733925	0.78152521	1.00000000	-0.03086397	NaN
tap	-0.07993531	0.22734902	-0.03086397	1.00000000	NaN
growth_rate	NaN	NaN	NaN	NaN	1

Table for the correlation for growth rate it gives whole idea and the R square is in all the regression is around 0.02, 0.009 and around less than 5% which means the regression is less good fit.