**CHALLENGING EXPERIMENT 5:**

1. **For the given details viz. Sector wise Number of Factories, Productive Capital, No. of Employees, Total Output and Net Value Added – Fit the Multiple Regression and interpret your result. Assume the variables as Dependent and Independent according to your requirement/description. File Name: Ex 3 data file.**

**Name: M.S.SANJAY REG No.: 15BCE0517 SLOT: L31+L32**

> c=read.csv('C:\\Users\\Admin\\Documents\\Book1.csv')

> c

factories productive employees output value

1 4074 8040.14 103771 58906.96 2574.26

2 121 1153.84 8366 1149.50 298.11

3 4195 9193.98 112137 60056.46 2872.37

4 175 362.11 9758 398.79 225.69

5 146 2160.66 20621 10007.82 847.00

6 390 3524.70 42081 15228.11 1056.46

7 1078 5296.20 62448 10309.32 1144.32

8 3394 35503.56 121232 197324.90 11191.17

9 1653 17402.97 149775 87014.55 6384.12

10 18244 23196.48 345418 150034.20 13196.19

11 766 3341.72 21082 8179.23 1009.72

12 19010 26538.20 366500 158213.43 14205.91

13 1399 5443.54 82492 16020.96 2127.89

14 906 48957.54 261509 86811.54 7411.35

15 560 7828.49 37819 13066.20 2069.05

16 75 777.89 7783 1971.12 833.44

17 416 657.85 12718 1812.71 333.73

18 5101 17617.82 419722 56656.25 7685.43

19 8457 81283.13 822043 176338.78 20460.89

20 755 4883.50 44462 26601.81 3385.31

21 378 11283.28 53403 21862.57 4094.44

22 77 729.50 6589 2078.76 453.11

23 141 8091.26 29176 13207.51 4408.97

24 1401 6117.76 58314 16152.42 2413.97

25 1997 26221.80 147482 53301.26 11370.49

26 3446 9479.07 445521 27587.27 9930.17

27 6179 81672.67 714510 155899.87 12156.96

28 2799 25750.41 215135 49545.80 7395.23

29 4156 22055.62 252998 41584.69 5119.78

30 13134 129478.70 1182643 247030.36 24671.97

31 1955 4133.14 49849 11652.96 1322.97

32 1084 8710.43 96921 18026.16 2538.66

33 435 2548.88 29365 4376.38 612.55

34 944 2487.76 47760 5903.79 838.44

35 1237 4590.96 51533 7755.36 1105.90

36 5655 22471.17 275428 47714.65 6418.52

37 6363 23526.76 707877 56545.76 12415.08

38 30 112.26 2685 329.05 -25.99

39 2775 7480.52 212163 21055.46 3039.21

40 1321 2483.64 43233 9534.12 673.31

41 661 2192.47 60478 5057.72 949.47

42 1982 4676.11 103711 14591.84 1622.78

43 2068 7487.31 201099 21319.48 4067.08

44 1429 486.58 10556 2378.60 168.84

45 1853 5383.71 45811 9448.81 988.97

46 137 458.26 3885 681.62 118.66

47 318 811.56 8096 2274.73 571.80

48 528 1040.07 10072 1522.04 218.64

49 2836 7693.60 67864 13927.20 1898.07

50 1126 20378.27 97127 29929.57 3596.87

51 4016 8899.58 92925 19077.80 2295.61

52 1300 12955.28 63800 18581.19 2290.79

53 6442 42233.13 253852 67588.56 8183.27

54 3724 16590.66 157010 28366.22 6699.42

55 570 1352.14 13683 2305.76 442.94

56 4294 17942.80 170693 30671.98 7142.36

57 16 217.17 1100 337.19 181.72

58 723 21269.94 38198 27887.77 5711.30

59 798 191739.79 71633 877330.93 47180.63

60 3308 49973.23 174412 99544.54 19171.45

61 727 45406.86 84040 103132.62 15025.15

62 453 33475.03 38691 69507.90 6157.86

63 4488 128855.12 297143 272185.06 40354.46

64 660 11869.09 58175 31508.63 5444.46

65 1273 8630.60 47808 34132.31 5911.80

66 1715 12659.35 100227 57704.93 25662.05

67 3006 11412.21 147069 48080.07 9679.71

68 6654 44571.25 353279 171425.94 46698.02

69 135 9474.91 23596 20583.07 1411.18

70 4839 112809.31 549225 181536.16 58152.85

71 634 20711.90 98364 48205.11 7462.73

72 2066 9199.68 93798 21512.46 2942.34

73 2700 29911.58 192162 69717.57 10405.07

74 9715 52727.81 372578 112226.52 15352.71

75 903 15567.50 72512 16522.78 3088.74

76 1172 10222.97 59640 12500.60 2128.47

77 8343 3519.92 347153 6783.35 2139.22

78 1173 6447.31 74087 12458.24 1807.90

79 1414 90914.58 155783 92109.55 26026.71

80 2430 9445.98 83127 16378.88 3058.06

81 7739 7921.86 105715 13076.86 2258.62

82 1090 5212.97 39489 9470.42 1972.85

83 23361 133685.59 864994 162777.90 39391.83

84 5747 472212.59 714307 607845.93 119211.95

85 1860 79455.67 122512 146660.84 15121.03

86 3519 33453.50 223655 72582.65 8309.54

87 518 2655.96 29192 7363.90 893.26

88 4037 36109.46 252847 79946.55 9202.80

89 2950 22076.63 168308 56280.65 9721.15

90 1504 12821.22 88191 35987.04 6626.65

91 373 1478.36 24240 7891.58 1629.54

92 4827 36376.21 280739 100159.27 17977.34

93 78 1068.16 4330 728.31 -132.16

94 1215 9483.01 61941 20921.06 2432.96

95 1727 3494.33 40825 7746.68 1373.30

96 1840 4835.95 66883 11326.73 2127.14

97 5931 16515.23 213703 39746.27 6500.36

98 10713 34328.52 383352 79740.74 12433.76

99 1128 9237.10 92721 20380.89 4086.68

100 168 3545.17 25936 17036.54 1913.19

101 288 11344.64 40788 15699.77 1978.64

102 304 14891.23 27055 32462.74 4669.63

103 394 5177.39 32682 9144.90 2438.00

104 151 412.05 12605 3824.54 1477.49

105 545 5589.44 45287 12969.44 3915.49

106 148 1723.42 8518 2809.04 716.77

107 86 545.16 2850 380.36 150.99

108 3 4.86 38 5.90 1.42

109 2698 42476.10 218563 91697.89 17425.47

110 486 7694.84 44588 16655.07 3173.13

111 218 1987.79 16437 9415.44 366.60

112 697 10602.92 42629 30237.02 2762.80

113 597 2234.78 32861 8320.49 2059.53

114 1512 14825.49 91927 47972.95 5188.93

115 570 4137.60 51705 10255.62 1912.38

116 950 6044.01 52255 25858.88 4450.00

117 1130 6193.84 60016 14546.25 2241.18

118 533 11969.20 55570 33217.64 7009.59

119 717 3121.44 29259 8404.14 1981.27

120 1070 10476.49 79811 28713.61 9022.33

121 701 10129.18 56068 17699.37 4009.27

122 139 1762.60 9809 2807.43 453.53

123 368 4187.59 37642 14834.24 3308.83

124 62 143.52 2123 302.96 55.24

125 109 302.57 3239 1272.67 182.32

126 1816 7031.79 80746 22726.03 4209.20

127 5515 49124.38 354267 129978.09 30231.58

128 798 9400.72 68955 43325.42 7821.51

129 1383 4145.69 51587 11635.73 2370.37

130 99 2061.29 6273 2089.32 165.41

131 551 9236.32 49027 19292.90 3577.68

132 621 4558.57 26330 11859.91 4496.20

133 897 3295.62 38360 9997.48 1741.50

134 1656 16080.70 95299 24368.77 5679.90

135 6005 48778.91 335831 122569.53 25852.57

136 200 45306.56 152737 190045.98 12165.91

137 745 8491.10 73824 18005.24 4120.36

138 4361 60592.28 565078 173090.34 35131.72

139 115 11656.57 33060 8866.63 2067.45

140 16 18.90 394 37.72 8.39

141 131 11675.47 33454 8904.35 2075.84

142 364 3415.51 35336 8330.73 1476.51

143 60 815.99 6022 698.86 136.79

144 54 192.86 1588 121.69 47.20

145 937 12895.20 175094 98804.15 15622.30

146 774 2070.15 36058 8878.38 1092.21

147 93 141.20 926 120.83 27.89

148 1804 15106.55 212078 107803.36 16742.40

149 1419 5531.25 56984 10937.75 1421.02

150 1277 22674.15 149580 108120.72 7291.51

151 175 201.25 3696 344.98 94.02

152 1452 22875.40 153276 108465.70 7385.53

153 14 208.63 906 134.52 37.96

154 180 498.40 10513 1344.72 195.50

155 102 471.94 2171 516.34 60.97

156 338 3742.94 30120 5361.84 1524.27

157 894 5058.70 61043 15872.55 2033.72

158 117 553.58 6114 617.38 198.74

159 220 863.00 12475 2561.62 1316.21

160 61 120.79 704 226.16 28.21

161 128 398.27 3217 791.68 141.95

162 149 1760.25 7957 2554.65 370.01

163 51 67.94 1709 363.74 47.75

164 726 3763.83 32176 7115.23 2102.87

165 100 871.12 5627 1616.35 418.43

166 38 455.09 2317 295.14 108.86

167 22 407.56 1893 230.36 93.40

168 60 862.65 4210 525.50 202.26

169 156 1274.34 6721 6610.12 192.58

170 60 347.03 2282 326.87 101.00

171 213 1185.13 21662 5348.42 2107.43

172 7 93.66 459 205.55 50.70

173 286 1625.82 24403 5880.84 2259.13

174 9276 233988.44 382205 270214.59 44645.49

> l=lm(factories~output+value,data=c)

> l

Call:

lm(formula = factories ~ output + value, data = c)

Coefficients:

(Intercept) output value

1.250e+03 1.647e-03 1.072e-01

> summary(l)

Call:

lm(formula = factories ~ output + value, data = c)

Residuals:

Min 1Q Median 3Q Max

-9279.4 -1201.0 -893.5 147.0 17621.4

Coefficients:

Estimate Std. Error t value Pr(>|t|)

(Intercept) 1.250e+03 2.584e+02 4.838 2.92e-06 \*\*\*

output 1.647e-03 4.179e-03 0.394 0.693950

value 1.072e-01 3.014e-02 3.556 0.000488 \*\*\*

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Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 2994 on 171 degrees of freedom

Multiple R-squared: 0.2087, Adjusted R-squared: 0.1995

F-statistic: 22.55 on 2 and 171 DF, p-value: 2.029e-09

**2***.***Use the Life Satisfaction dataset to fit the regression equation. File Name: Ex 1 and 4 data file.**

> t=read.csv('C:\\Users\\Admin\\Documents\\r.csv')

> t

Subject Age Gender Married IncomeC HealthC ChildC LifeSatC SES Smoke Spirit Finish LifeSat Income

1 1 16 0 0 0 38 0 17 17 1 30 1 22 26

2 2 28 1 0 0 38 0 16 21 1 39 1 20 15

3 3 16 1 1 16 52 1 39 40 0 30 1 42 88

4 4 23 1 0 6 51 0 22 31 0 60 1 48 73

5 5 18 0 1 7 52 0 25 38 0 32 0 20 14

6 6 30 0 1 25 43 2 53 36 1 39 0 33 38

7 7 19 0 1 19 55 0 28 41 0 51 1 33 45

8 8 19 1 0 0 52 2 17 52 0 35 1 21 16

9 9 34 0 0 29 60 2 20 56 0 23 1 26 64

10 10 16 1 0 0 53 0 21 27 0 29 0 37 19

11 11 25 1 0 3 39 0 18 34 1 61 1 40 56

12 12 16 1 1 1 42 0 31 29 1 58 1 35 70

13 13 16 0 0 0 43 0 15 28 1 39 1 32 71

14 14 16 0 1 18 54 1 34 38 0 40 0 37 44

15 15 16 1 0 0 52 0 20 38 0 27 1 35 25

16 16 32 1 1 26 54 1 39 37 0 30 0 47 38

17 17 19 0 0 0 46 0 17 25 0 36 1 26 39

18 18 17 1 1 10 55 2 48 53 0 43 0 42 6

19 19 24 0 0 17 52 0 16 36 0 54 1 38 75

20 20 26 1 1 12 57 1 39 41 0 32 1 42 67

> p=lm(Age+Gender~Married+HealthC+ChildC,data=t)

> p

Call:

lm(formula = Age + Gender ~ Married + HealthC + ChildC, data = t)

Coefficients:

(Intercept) Married HealthC ChildC

22.29824 -1.89921 -0.03077 3.21078

> summary(p)

Call:

lm(formula = Age + Gender ~ Married + HealthC + ChildC, data = t)

Residuals:

Min 1Q Median 3Q Max

-7.128 -4.984 -1.341 4.602 11.052

Coefficients:

Estimate Std. Error t value Pr(>|t|)

(Intercept) 22.29824 11.01317 2.025 0.0599 .

Married -1.89921 2.90593 -0.654 0.5227

HealthC -0.03077 0.23294 -0.132 0.8966

ChildC 3.21078 1.90502 1.685 0.1113

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Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 6.001 on 16 degrees of freedom

Multiple R-squared: 0.1633, Adjusted R-squared: 0.006404

F-statistic: 1.041 on 3 and 16 DF, p-value: 0.4013

