In this example, the I-test for independent samples could help determine whether the last column data outperforms previous columns · State the research question: Does the last column outperforms the previous columns? . State the statistial hypothes Ho: MIZMI H: 11, #1/2 · Set the decision mlp d=0.05 df= (n,-1)+(n2-1)=13 to = +77 2. · Calculate the test statistic individually U) Date a set DNC: 7 11 15 18 21 25 28 32.5 36 39 Data set acm: 2 3 4 5 6 7 8.5 10.5 11.5 12.5 1. Sum of the two groups: DNC: 7+11+15+18+21+25+28+32.5+36+39=232.5 acm 2+3 +4+ S+ 6+7 +8.5+ 10.5+ 11.5+ 12.5= 70 2. Square the sums from step 1: DNC: 232.52 = 54056.25 acm: 702 = 4900 3 Calculate the means for the two groups: DING: C7+11 +15+18+21+25+28+32.5+36+39)/10= 23.25 Och 70/10:7 4 Square the individual scores and then add them up: DNC: 72+112+152+182+ 212+252+282+ 32.52+362+392: 6442.25 acm: 22+32+42+52+62+72+8.52+ 10.52+11.52+12.52=610 ٥. $t: \frac{232.5 - 70}{6442.25 - \frac{54066.25}{10} + 610 - \frac{4900}{10}} \approx \frac{162.5}{4.872} \approx 33.35 > 2.1$ reject the null hypothesis eignificant difference. As the p-value is less than the alpha level, there is a

Data set SLA 5 9 13 15.5 18 21 24 26.5 29 30.5 Data set QCM 2 3 4 5 6 7 8.5 105 11.5 12.5 La set QCM 2 3 4 5 6 7 8.5 105 11.5 12.5 SLA 5+ 9+13 +15.5+ 18+21+24+ 26.5 +29 +30.5=191.5 GCM: 2+3+4+5+6 +7+8.5+ 10.5 +11.5+ 12.5=70 2 Square the sums from Step 1: SLA 191.5': 36672.25 QCM: 70'= 4900 3 Calculate the means for the two groups: SLA: 191.5/10 = 19.15 QCM: 70/10=7 4. Square the individual data and then add them up. SLA: 5²+ 9²+13²+15.5²+ 18²+21²+24²+26.5²+29²+30.5²= 4329.75 QCM: 2²+3²+4²+5²+6²+7²+8.5²+10.5²+11.5²+12.5²=610 5. 121.5 2-95 = 91.186+72.1 6 reject the hypothesis
Data set QCM 2 3 4 5 6 7 8.5 [05] 11.5 125 1. Sum of the two groups: SLA: St 9+13 +15.5 + 18+21+24+ 26.5 +29 +30.5=191.5 GCM: 2+3+4+5+6 +7 +8.5 + 10.5 +11.5 + 12.5 = 70 2 Square the sums from Step 1: SLA: 191.5' = 36672.25 GCM: 70' = 4900 3 Calculate the means for the two groups: SLA: 191.5/10 = 19.15 GCM: 70/10 = 7 4. Square the individual data and then add them up. SLA: 52+ 92+132+15.52+ 182+212+242+26.52+292+30.52 = 4329.75 GCM: 22+32+42+52+62+72+852+10.52+11.52+12.52=610 5. 1= 191.5 - 70 1= 121.5 2 2.95 = 41.186472.1 6 reject the hypothesis
1. Sum of the two graps: SLA 5+ 9+13 +15.5+ 18+ 21 +24+ 26.5 +29 +30.5=191.5 GCM: 2+3+4+5+6 +7+8.5+ 10.5 +11.5+ 12.5=70 2 Squave the sums from Step 1: SLA 191.5*: 36672.25 GCM: 70' = 4900 3 Calculate the means for the two groups: SLA: 191.5/10 = 19.15 GCM: 70/10=7 4 Squave the individual data and then add them up. SLA: 5²+ 9²+13²+15.5²+ 18²+21²+24²+26.5²+29²+30.5²= 4329.75 GCM: 2²+3²+4²+5²+6²+7²+85²+10.5²+11.5²+12.5²=610 5. 101.5 - 70 121.5 2 - 295 = 41.186472.1 6 reject the hypothesis
GCM: $2+3+4+5+6+7+8+5+10.5+11.5+12.5=70$ 2 Square the sums from Step 1: SLA: $191.5^2 = 36672.25$ GCM: $70^2 = 4900$ 3 Calculate the means for the two groups: SLA: $191.5/10 = 19.15$ GCM: $70/10 = 7$ 4. Square the individual data and then add them up. SLA: $5^2+9^2+13^2+15.5^2+13^2+21^2+24^2+26.5^2+29^2+30.5^2=4329.75$ GCM: $2^2+3^2+4^2+5^2+6^2+7^2+8.5^2+10.5^2+11.5^2+12.5^2=610$ 5. $\frac{4329.75}{2.95} = \frac{36672.25}{10} + \frac{4900}{10} / 18 \times (1+\frac{1}{10})$ $\frac{121.5}{2.95} = 41.186472.1$ 6. reject the hypothesis
2 Square the sums from Step 1: SLA: $191.5^2 = 36672.25$ QCM: $70^4 = 4900$ 3 Calculate the means for the two groups: SLA: $191.5/10 = 19.15$ QCM: $70/10 = 7$ 4. Square the individual data and then add them up. SLA: $5^2 + 9^2 + 13^2 + 15.5^2 + 18^2 + 21^2 + 24^2 + 26.5^2 + 29^2 + 30.5^2 = 4329.75$ QCM: $2^2 + 3^2 + 4^2 + 5^2 + 6^2 + 7^2 + 3 \cdot 5^2 + 10.5^2 + 11.5^2 + 12.5^2 = 610$ 5. $t = \frac{91.5 - 70}{\sqrt{4329.75 - 36672.25}}$ $t = \frac{91.5 - 70}{\sqrt{9329.75 - 36672.25}}$ $= 41.186472.1$ 6. reject the hypothesis
SLA. $ q .s^2 = 36672.25$ QCM $70^4 = 4900$ 3. Calculate the means for the two groups: SLA: $ q .s/ 0 = q .15$ QCM; $70/ 0 = 7$ 4. Square the individual data and then add them up. SLA: $s^2 + q^2 + 13^2 + 15.5^2 + 18^2 + 21^2 + 24^2 + 26.5^2 + 24^2 + 30.5^2 = 4329.75$ QCM: $2^2 + 3^2 + 4^2 + 5^2 + 6^2 + 7^2 + 3.5^2 + 10.5^2 + 11.5^2 + 12.5^2 = 610$ 5. $t = \frac{ q .5 - 70}{\sqrt{4324.75 - 36672.25}}$ $= 41. 86472. $ 6. reject the hypothesis.
QCM 70° = 4900 3. Calculate the means for the two groups: SLA: $191.5/10 = 19.15$ QCM; $70/10 = 7$ 4. Square the individual dota and then add them up. SLA: $5^2 + 9^2 + 13^2 + 15.5^2 + 18^2 + 21^2 + 24^2 + 26.5^2 + 29^2 + 30.5^2 = 4329.75$ QCM: $2^2 + 3^2 + 4^2 + 5^2 + 6^2 + 7^2 + 3.5^2 + 10.5^2 + 11.5^2 + 12.5^2 = 610$ 5. $1 = \frac{191.5 - 70}{4329.75 - 36672.25} + 19.5 $
3. Calculate the means for the two groups: SLA: $191.5/10 = 19.15$ OCM; $70/10 = 7$ 4. Square the individual data and then add them up. SLA: $5^2 + 9^2 + 13^2 + 15.5^2 + [8^2 + 21^2 + 24^2 + 26.5^2 + 29^2 + 30.5^2 = 4329.75$ OCM: $2^2 + 3^2 + 4^2 + 5^2 + 6^2 + 7^2 + 8.5^2 + 10.5^2 + 11.5^2 + 12.5^2 = 610$ 5. $t = \frac{191.5 - 70}{10}$ $\frac{121.5}{2.95}$ $= 41.186472.1$ 6 reject the hypothesis
SLA: $191.5/10 = 19.15$ OCM; $70/10 = 7$ 4. Square the individual data and then add them up. SLA: $5^2 + 9^2 + 13^2 + 15.5^2 + 18^2 + 21^2 + 24^2 + 26.5^2 + 29^2 + 30.5^2 = 4329.75$ OCM: $2^2 + 3^2 + 4^2 + 5^2 + 6^2 + 7^2 + 8.5^2 + 10.5^2 + 11.5^2 + 12.5^2 = 610$ S. $t = \frac{191.5 - 70}{4329.75 - 36672.25}$ $t = \frac{121.5}{2.95}$ $= 41.186472.1$ 6 reject the hypothesis
OCM; $70/10 = 7$ 4. Square the individual data and then add them up. SLA: $5^2 + 9^2 + 13^2 + 15 \cdot 5^2 + 18^2 + 21^2 + 24^2 + 26 \cdot 5^2 + 29^2 + 30 \cdot 5^2 = 4329.75$ OCM: $2^2 + 3^2 + 4^2 + 5^2 + 6^2 + 7^2 + 3 \cdot 5^2 + 10 \cdot 5^2 + 11 \cdot 5^2 + 12 \cdot 5^2 = 610$ S. $t = \frac{19! \cdot 5 - 70}{4329.75 \cdot 36672.25} + \frac{4900}{10} / 18 \times (\frac{1}{10} + \frac{1}{10})$ $= \frac{121.5}{2.95}$ $= 41. 86 + 72. $ 6. reject the hypothesis.
4. Square the individual data and then add them up. SLA: $5^2 + 9^2 + 13^2 + 15.5^2 + [8^2 + 21^2 + 24^2 + 26.5^2 + 29^2 + 30.5^2 = 4329.75$ QCM: $2^2 + 3^2 + 4^2 + 5^2 + 6^2 + 7^2 + 8.5^2 + 10.5^2 + 11.5^2 + 12.5^2 = 6[0]$ S. $t = \frac{[91.5 - 70]}{[4329.75 - 36672.25]}$ $t = \frac{4329.75}{[0]} + \frac{4900}{[0]} + \frac{4900}{$
SLA: $S^2 + q^2 + 13^2 + 15.S^2 + 18^2 + 21^2 + 26.S^2 + 29^2 + 30.S^2 = 4329.75$ QCM: $Z^2 + 3^2 + 4^2 + 5^2 + 6^2 + 7^2 + 3.5^2 + 10.S^2 + 11.S^2 + 12.S^2 = 610$ S. $t = \frac{[9! \cdot 5 - 70]}{\sqrt{4329.75 - \frac{36672.25}{10} + 610 - \frac{4900}{10}} / 18 \times (\frac{1}{10} + \frac{1}{10})$ $= \frac{121.5}{2.95}$ $= 41. 86472.1$ 6 reject the hypothesis.
OCM: $2^{2}+3^{2}+4^{2}+5^{2}+6^{2}+7^{2}+8\cdot5^{2}+10\cdot5^{2}+11\cdot5^{2}+12\cdot5^{2}=6[0]$ S. $t = \frac{[9! \cdot 5 - 70]}{4329.75 - \frac{36672.25}{10} + \frac{4900}{10} - \frac{4900}{10} / 18 \times (\frac{1}{10} + \frac{1}{10})}$ $= \frac{[21.5]}{2.95}$ $= 41. 86472. $ 6. reject the hypothesis
5. $t = \frac{[9!.5 - 70]}{\sqrt{4329.75 - \frac{36672.25}{10} + 610 - \frac{4900}{10})/18} \times (\frac{1}{10} + \frac{1}{10})$ $= \frac{ 21.5}{2.95}$ $= 41. 86472. $ 6. reject the hypothesis
$t = \frac{ 9 .5 - 70}{\sqrt{4329.75 - \frac{36672.25}{10} + \frac{4900}{10} - \frac{4900}{10}} / 18 \times (\frac{1}{10} + \frac{1}{10})$ $= \frac{ 2 .5}{2.95}$ $= 41.186472.1$ 6 reject the hypothesis
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
$= \frac{ 21.5 }{2.95}$ $= 41.186472.1$ 6. reject the hypothesis
2.95 = 41.186472.1 6. reject the hypothesis
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6 reject the hypothesis
6 reject the hypothesis
Therefore, p.co.os. As the p-value is less than the alpha level, there is a significant difference
is a significant difference.
(3) Data set Hy-IoT 4 6 8 10 12 15
Duta set O.CM: 23 4 5 6 7 8.5 10.5 11.5 12.5 1 Hy-IoT. 4+6+8 + 10+13+15+ 18.5+ 21.6+ 24+26=146.1
a cm: 70
2. Hy-IoT: 46-12 = 21345.2
GCM: 702 = 4900

3. Hy-IOT 146.1/10 = 14.61 acm . 70 /10 =7 4. 42 + 62 +82 + 102 + 132 + 152 + 18.54 + 246 + 242 + 262 = 2670.81 610 $\int (2670.81 - \frac{21345.21}{10} + 610 - \frac{4400}{10})^{7/18} \times \frac{1}{5}$ ≈ 76.1 2.7 = 28, 185 72. 6. reject the null hypothesis There p<0.05. As the p-value is less than the alpha level there is a significant difference Ovorall, we could conclude that the null hypothesis is the opposite of what we assume This means that the previous data columns are different with the last data column: According to the question, we could find the OCM data is botter than other data.