1. Using the SPSS output given below, interpret the data in the table for the within-subjects effects.
2. Make sure to discuss the findings of the analysis in terms of what they actually mean in the context of the study (example given in the lecture for the effects of room temperature on memory).

|  |  |
| --- | --- |
| **Within-Subjects Factors** | |
| Measure:MEASURE\_1 | |
| Recall | Dependent Variable |
| 1 | Recall\_60 |
| 2 | Recall\_70 |
| 3 | Recall\_80 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Descriptive Statistics** | | | |
|  | Mean | Std. Deviation | N |
| Recall\_60 | 5.4000 | 3.20936 | 5 |
| Recall\_70 | 4.6000 | 3.50714 | 5 |
| Recall\_80 | 4.0000 | 2.73861 | 5 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Multivariate Testsb** | | | | | | |
| Effect | | Value | F | Hypothesis df | Error df | Sig. |
| Recall | Pillai's Trace | .220 | .423a | 2.000 | 3.000 | .689 |
| Wilks' Lambda | .780 | .423a | 2.000 | 3.000 | .689 |
| Hotelling's Trace | .282 | .423a | 2.000 | 3.000 | .689 |
| Roy's Largest Root | .282 | .423a | 2.000 | 3.000 | .689 |

a. Exact statistic

b. Design: Intercept   
Within Subjects Design: Recall

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Mauchly's Test of Sphericityb** | | | | | | | |
| Measure:MEASURE\_1 | | | | | | | |
| Within Subjects Effect | Mauchly's W | Approx. Chi-Square | df | Sig. | Epsilona | | |
| Greenhouse-Geisser | Huynh-Feldt | Lower-bound |
| Recall | .766 | .798 | 2 | .671 | .811 | 1.000 | .500 |

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept   
Within Subjects Design: Recall

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Tests of Within-Subjects Effects** | | | | | | |
| Measure:MEASURE\_1 | | | | | | |
| Source | | Type III Sum of Squares | df | Mean Square | F | Sig. |
| Recall | Sphericity Assumed | 4.933 | 2 | 2.467 | .291 | .755 |
| Greenhouse-Geisser | 4.933 | 1.621 | 3.043 | .291 | .714 |
| Huynh-Feldt | 4.933 | 2.000 | 2.467 | .291 | .755 |
| Lower-bound | 4.933 | 1.000 | 4.933 | .291 | .618 |
| Error(Recall) | Sphericity Assumed | 67.733 | 8 | 8.467 |  |  |
| Greenhouse-Geisser | 67.733 | 6.485 | 10.445 |  |  |
| Huynh-Feldt | 67.733 | 8.000 | 8.467 |  |  |
| Lower-bound | 67.733 | 4.000 | 16.933 |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Tests of Within-Subjects Contrasts** | | | | | | |
| Measure:MEASURE\_1 | | | | | | |
| Source | Recall | Type III Sum of Squares | df | Mean Square | F | Sig. |
| Recall | Linear | 4.900 | 1 | 4.900 | 1.114 | .351 |
| Quadratic | .033 | 1 | .033 | .003 | .961 |
| Error(Recall) | Linear | 17.600 | 4 | 4.400 |  |  |
| Quadratic | 50.133 | 4 | 12.533 |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tests of Between-Subjects Effects** | | | | | |
| Measure:MEASURE\_1 Transformed Variable:Average | | | | | |
| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
| Intercept | 326.667 | 1 | 326.667 | 24.810 | .008 |
| Error | 52.667 | 4 | 13.167 |  |  |

Was the assumption of sphericity violated? If so, then what?

Interpret the results in a Microsoft Word document.