Michael Dang – 16257750

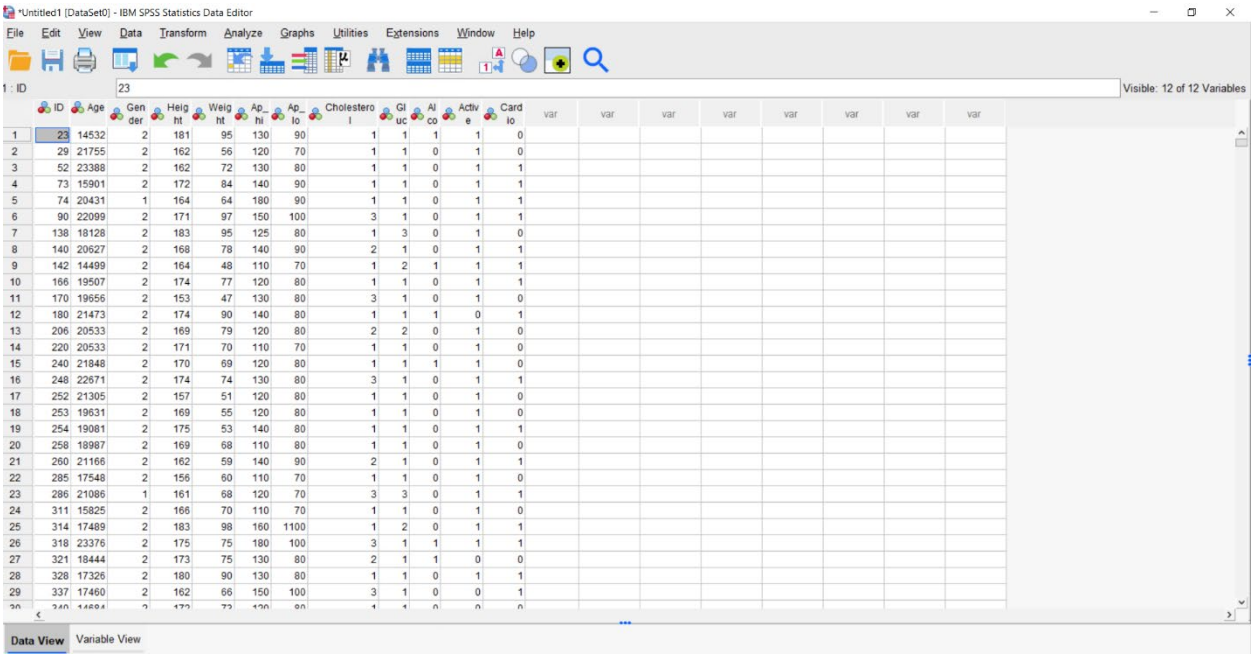
MATH434

HW4

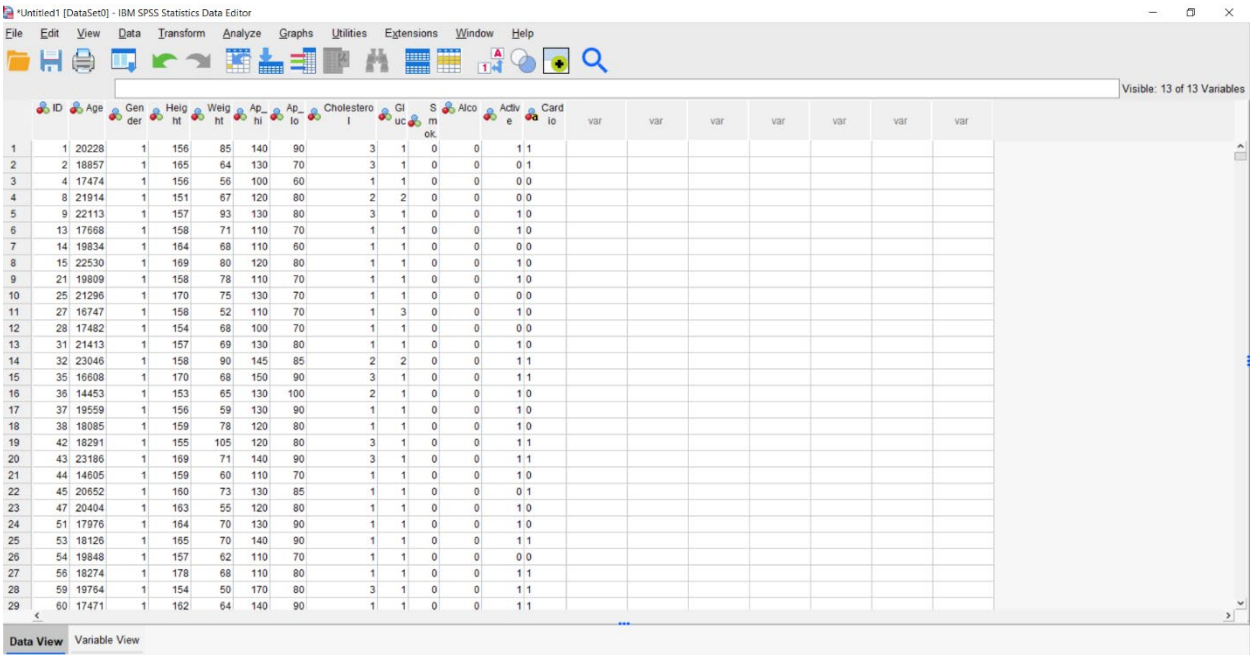
9.

a.

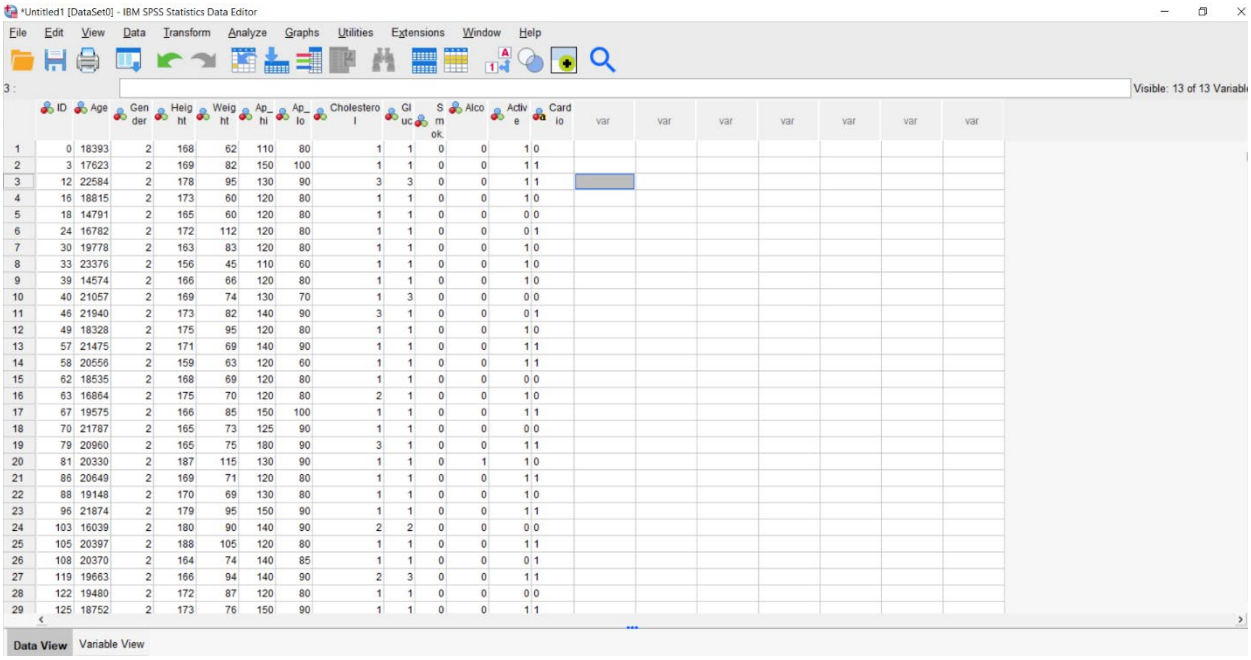
Smoker data set.



Male non-smoker



Female non-smoker



b. & c.

Smoker

Factor Analysis

Communalities

	Initial	Extraction
Age	1.000	1.000
Height	1.000	1.000
Weight	1.000	1.000
Ap_hi	1.000	1.000
Ap_lo	1.000	1.000

Extraction Method: Principal Component Analysis.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.487	29.746	29.746	1.487	29.746	29.746
2	1.224	24.475	54.221	1.224	24.475	54.221
3	.957	19.134	73.355	.957	19.134	73.355
4	.745	14.905	88.260	.745	14.905	88.260
5	.587	11.740	100.000	.587	11.740	100.000

Extraction Method: Principal Component Analysis.

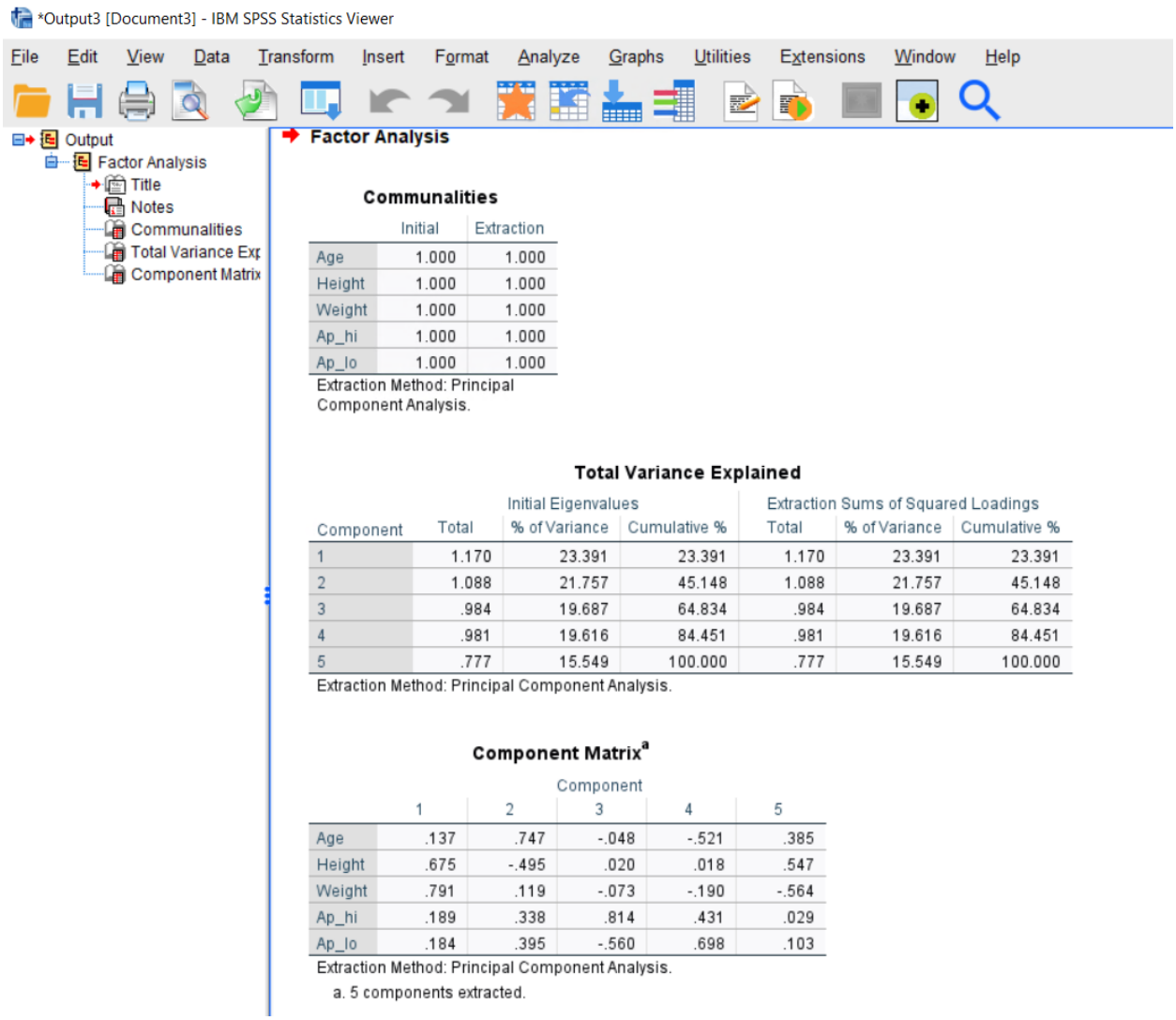
Component Matrix[a]

	Component				
	1	2	3	4	5
Age	.082	.699	.527	.471	-.066
Height	.609	-.535	.112	.406	.408
Weight	.796	-.204	.122	-.089	-.549
Ap_hi	.613	.497	.075	-.508	.337
Ap_lo	.317	.399	-.804	.305	-.039

Extraction Method: Principal Component Analysis.

a. 5 components extracted.

Male non-smoker



Communalities

	Initial	Extraction
Age	1.000	1.000
Height	1.000	1.000
Weight	1.000	1.000
Ap_hi	1.000	1.000
Ap_lo	1.000	1.000

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.170	23.391	23.391	1.170	23.391	23.391
2	1.088	21.757	45.148	1.088	21.757	45.148
3	.984	19.687	64.834	.984	19.687	64.834
4	.981	19.616	84.451	.981	19.616	84.451
5	.777	15.549	100.000	.777	15.549	100.000

Extraction Method: Principal Component Analysis.

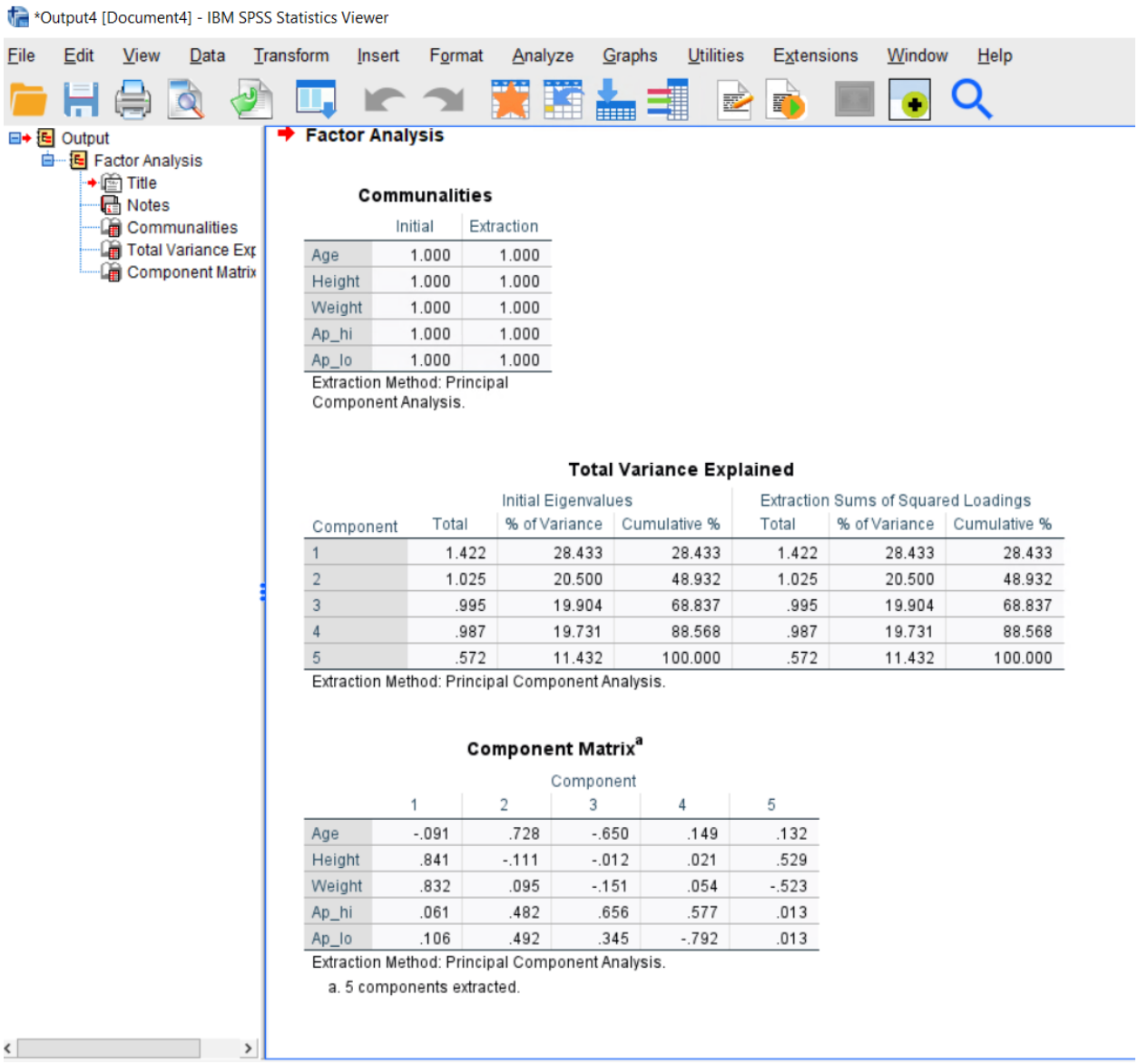
Component Matrix[a]

	Component				
	1	2	3	4	5
Age	.137	.747	-.048	-.521	.385
Height	.675	-.495	.020	.018	.547
Weight	.791	.119	-.073	-.190	-.564
Ap_hi	.189	.338	.814	.431	.029
Ap_lo	.184	.395	-.560	.698	.103

Extraction Method: Principal Component Analysis.

a. 5 components extracted.

Female non-smoker



d.

For smoker, the total variance capture at the accepting percentage is PC3 or PC4. Because it captures more than 73%, which is pretty good.

For male non-smoker, the total variance capture at the accepting percentage is PC4. Because at that level it captures more than 84%, also pretty good.

For female non-smoker, the total variance capture at the accepting percentage is PC4. Because at that level it captures more than 88%, incredibly good.

Note: I used the eigenvalue greater than 0 to get this analysis.