Chapter 4

SPSS: An Introduction
What is SPSS?

- It is an interactive user-friendly Statistical Package for Social Sciences
- It comprises two parts
  - Data editor-creating and modifying data sets
  - Statistical procedures-analyzing the given data sets
Four steps in data analysis using SPSS

• Get your data into the Data Editor. You can open a previously saved data file; read a spreadsheet, text file, or database; or enter your data directly in the Data Editor.

• Select a procedure from the menus to create tables, calculate statistics, or create charts.

• Select the variables you want to use in the analysis. The variables in the data file are displayed in a dialog box for the procedure.

• Run the procedure and study the results.
How to start SPSS

- Double click the icon in the desktop to activate SPSS
- Alternatively, “start” → “programs” → “SPSS Inc” → “PASW Statistics 18 for windows”
- After SPSS started, the follow window will appear
How to start SPSS
Entering Data into the Data Editor

**Step 1**

- Activate the tab labeled “Variable View” at the bottom of the Data Editor
- In the name column, define five variables: Subject, Gender, Exam1, Exam2, and HWGrade (Refer to the “dataset ex2_1.txt” in Chapter 2)
Specifying the type of data
Specifying label

- Label the variable “gender” as “sex of the subject”
- Label “exam1” as “Exam 1 Mark”
- Label “exam2” as “Exam 2 Mark”
- Label “HWGrade” as “Homework Grade”
**Specifying value labels**

- Give a label to the corresponding value of the variable
- This is very useful for qualitative variables
Specifying measures

3 types of measures

- Nominal (for “String” type of variables)
- Ordinal
- Scale (for “Numeric” type of variables)
Entering data into the data view

**Step 2**

- Switch to “Data View” by clicking the tab in the lower left of the screen
- Type in the data in a way similar to entering data in an Excel file
- When it is done, “Data Editor” should look like the following
Entering Data into the Data View

![Data View in PASW Statistics Data Editor](image-url)
Saving and importing a data file

Saving a file
“File” → “Save As” → In the “Save In ” box, select the appropriate directory → Enter the file name and click “Save”.

Importing a file
“File” → “Open” → In the “Files of Type ” box, select the appropriate type. It can be a SPSS (*.sav), Excel (*.xlsx), SAS, or Text (*.txt) file.
Importing a data file
**Importing a data file**

“Open”, then check the box if variable names are given in the first row

![Opening Excel Data Source](image-url)
Importing a fixed format data file

- “File” → “Read Text Data”
- Choose the file and click “Open” → “Next”
- Choose “Fixed width” and then “Next”
Importing a fixed format data file

- Variables are delimited by a specific character (i.e., comma, tab).
- Variables are aligned in fixed width columns.

Are variable names included at the top of your file?
- Yes
- No

Text file: F:\HanJing\ST2137\ecd\data\ex4.1.txt

<table>
<thead>
<tr>
<th>1</th>
<th>10</th>
<th>50</th>
<th>84</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>7</td>
<td>55</td>
<td>89</td>
<td>A</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>90</td>
<td>86</td>
<td>B</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
<td>82</td>
<td>85</td>
<td>B</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>82</td>
<td>85</td>
<td>A</td>
</tr>
</tbody>
</table>
Importing a fixed format data file

- Set the variable break lines
  For example
  - id: cols 1-2; gender: col 3; exam1: cols 4-6, exam2: col 7-9, and hw_grade: col 10.
  - set the variable break lines between cols 2&3, between cols 3&4, between cols 6&7, between cols 9& 10.

- click “Next” → “Finish”
Importing a fixed format data file
Insert a variable

In the “Variable View” windows
Move the cursor to the row where you want to insert the new variable
“Edit”
↓
“Insert Variables”
↓
Modify the specifications (such as “Type”, “Label” and so on) of the new variables
Remove a variable

In the “Variable View” window
Highlight the row corresponds to the variable which you want to remove
“Edit”

∥
“Clear”
Select cases

In the “Data view” window
“Data”
  ↓
“Select Cases”
  ↓
Check “If conditions is satisfied” and then click the “if” icon
Choose the variable for the condition (Gender) and state the condition (Gender=“1”)
Select cases
Select cases

![Data Editor screenshot]

<table>
<thead>
<tr>
<th>Subject</th>
<th>Gender</th>
<th>Exam1</th>
<th>Exam2</th>
<th>HWGrade</th>
<th>filter_5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>80</td>
<td>84</td>
<td>A</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>85</td>
<td>89</td>
<td>A</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>90</td>
<td>86</td>
<td>B</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
<td>82</td>
<td>85</td>
<td>B</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>25</td>
<td>94</td>
<td>94</td>
<td>A</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>14</td>
<td>88</td>
<td>84</td>
<td>C</td>
<td>0</td>
</tr>
</tbody>
</table>
Merge files: Add cases

Open one of the files that you want to merge

- “Data View” → “Data” → “Merge Files” → “Add Cases”
- Choose the file either from “External SPSS data file” or from “An open dataset”

![Add Cases to ex4.1.male.sav (DataSet6)](image)
Merge files: Add cases
### Merge files: Add cases

![Data Editor Screen](image)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Gender</th>
<th>Exam1</th>
<th>Exam2</th>
<th>HWGrade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>80</td>
<td>84</td>
<td>A</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>85</td>
<td>89</td>
<td>A</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>82</td>
<td>86</td>
<td>B</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>90</td>
<td>86</td>
<td>B</td>
</tr>
<tr>
<td>5</td>
<td>25</td>
<td>94</td>
<td>94</td>
<td>A</td>
</tr>
<tr>
<td>6</td>
<td>14</td>
<td>86</td>
<td>84</td>
<td>C</td>
</tr>
</tbody>
</table>

- **Data View**: Access to data editing and manipulation.
- **Variable View**: Allows for variable definition and modification.

*PASW Statistics Processor is ready*
Sorting a file

“Data” → “Sort Cases...”
Sort a file according to an index variable ("Subject" is used as the index variable)
Merge file: Add variables

- Sort all the files that we want to merge according to the index variable
- Open one of the sorted files
- “Data View” → “Data” → “Merge Files” → “Add variables...”
- “Continue” → “OK”
Transformation

Numerical Expression

- Suppose we want to create a new variable which represents the average mark of exam 1 and exam 2 marks
- “Transform” → “Compute”
Transformation

![Compute Variable dialog box with Target Variable: Average = (Exam1 + Exam2) / 2 function entered.](image)
Transformation

<table>
<thead>
<tr>
<th>Subject</th>
<th>Gender</th>
<th>Exam1</th>
<th>Exam2</th>
<th>HW/Grade</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>80</td>
<td>84</td>
<td>A</td>
<td>82.00</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>85</td>
<td>89</td>
<td>A</td>
<td>87.00</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>82</td>
<td>85</td>
<td>B</td>
<td>83.50</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>90</td>
<td>86</td>
<td>B</td>
<td>88.00</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>94</td>
<td>94</td>
<td>A</td>
<td>94.00</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>88</td>
<td>84</td>
<td>C</td>
<td>86.00</td>
</tr>
</tbody>
</table>

This is a screenshot of a data editor showing a dataset with variables such as Subject, Gender, Exam1, Exam2, HW/Grade, and Average.
Transformation: Recode

- Suppose we want to create a new variable “FinalGrade” which takes “a” if the average mark $\geq 90$, “b” if the average mark $\geq 85$ and $< 90$, “c” for the other values of the average mark.

- “Transform” $\rightarrow$ “Recode Into Difference Variables”

- Click “Old and new values ...”

- Select your range
Transformation: Recode
**Transformation: Recode**

![Recode into Different Variables: Old and New Values](image)

- **Old Value**:
  - Value:
  - System-missing
  - System-or user-missing
  - Range:
    - through
  - Range, LOWEST through value:
  - Range, value through HIGHEST:
  - All other values

- **New Value**:
  - Value:
  - System-missing
  - Copy old value(s)

- **Old -> New**:
  - 85 thru 90 -> 'b'
  - 90 thru Highest -> 'a'
  - Lowest thru 85 -> 'c'

- Output variables are strings
- Width: 8
- Convert numeric strings to numbers ('5'->5)

[Continue] [Cancel] [Help]
**Transformation: Recode**

![Data View](image)