

## § Template Documentation §

## Section 1: Basic Information of This Template Class

Despite this *SEU-ML-Assign* class is dedicated to Southeast University as the Machine Learning assignment L<sup>A</sup>T<sub>E</sub>X template both for teachers and students, it can also be used for other schools. In the near future, it will eventually become an elegant template for all assignment requirements.

<b>Package Class Name</b>	seu-ml-assign
<b>Version</b>	1.1 (2022/03/28)
<b>Description</b>	L <sup>A</sup> T <sub>E</sub> X Template for Southeast University Machine Learning Assignment
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<b>Maintainer</b>	Teddy van Jerry (Wuqiong Zhao)
<b>GitHub Repository</b>	<a href="https://tvj.one/ml-tex">https://tvj.one/ml-tex</a>
<b>Issues</b>	<a href="https://tvj.one/ml-tex/issues">https://tvj.one/ml-tex/issues</a>
<b>CTAN Package</b>	<a href="https://www.ctan.org/pkg/seu-ml-assign">https://www.ctan.org/pkg/seu-ml-assign</a>
<b>Information Page</b>	<a href="https://seu-ml-assign.github.io">https://seu-ml-assign.github.io</a>
<b>Open Source License</b>	MIT License ( <a href="https://tvj.one/ml-tex/blob/master/LICENSE">https://tvj.one/ml-tex/blob/master/LICENSE</a> )

You can contact me at [me@tvj.one](mailto:me@tvj.one) for support.

## Section 2: Class Options

To use this template, put `seu-ml-assign.cls` file under the same directory with your main `tex` file.

```
\documentclass{seu-ml-assign} % SEU Machine Learning Assignment Template
```

The page size is A4 paper. There are 8 supported options:

Option	Description	Default
<code>solution</code>	Write solutions (for students).	•
<code>problem</code>	Write problem sets (for instructors).	
<code>oneside</code>	One-sided document.	•
<code>twoside</code>	Two-sided document.	
<code>9pt</code>	Set font size as 9 points.	
<code>10pt</code>	Set font size as 10 points.	•
<code>11pt</code>	Set font size as 11 points.	
<code>12pt</code>	Set font size as 12 points.	

For example, a 10pt, two-sided document for instructors to create an assignment consisting of problem sets should use

```
\documentclass[10pt,twoside,problem]{seu-ml-assign} % The 10pt option can
↪ be omitted.
```

With the `twoside` option, the header will switch style every page, as is the case in this documentation. In contrast, the sample file uses the `oneside` option.

There are several differences between the `solution` mode and `problem` mode, including the preset texts on the document (for example the student name is not shown in the `problem` mode) and some properties can only be used with the `problem` mode which will be elaborated on in §3.2.

## Section 3: Document Properties

**(1) Fields** There are several fields to set. The `\mainproblem{}` can be left empty. Consider the following example used in the sample file:

```
\title{Assignment} % Document Type: assignment, quiz,
↪ etc.
\author{Teddy van Jerry} % Your Name
\studentID{61520522} % Your Student ID
\instructor{TeX - LaTeX Stack Exchange} % The Name of Your Instructor
\date{\today} % The Submission or Release Date
\duedate{20:00 March 21, 2022} % The Time the Assignment is Due
\assignno{1} % Assignment Number
\semester{SEU --- 2022 Spring} % Semester
\mainproblem{Linear Algebra} % The Main Problem or Topic
```

With these fields set, you can use the command `\maketitle` to print the title. At the same time, the metadata for the PDF document is automatically set.

**(2) Problem Mode Only Properties** One of the fields `\author{}` and `\instructor{}` can be omitted or set as empty provided that they are the same.

## Section 4: Section Title (Problem) Settings

**(1) Normal Title** The title of a problem can be set as `\problem{This is a Section Title}` or uses a lower level command `\section{This is a Section Title}`. There are two slight different between these two ways.

- The name in the table of contents (ToC) using `\problem{}` will add the section/problem number before the section/problem title name.
- The optional argument of `\section{}` will set the name in the ToC which is by default in  $\text{\LaTeX}$  in the format of `\section[<ToC Name>]{<Section Title Name>}`. By contrast, the optional argument in `\problem{}` sets the problem points as is detailed in §4.3.

`\section[\thesection~<Title>]{<Title>}` is equivalent to `\problem{<Title>}` or `\problem[]{<Title>}`.

**(2) Unnumbered Title** Use the `\section*{}` or `\problem*{}` to get an unnumbered section.

## This is an Unnumbered Problem

This title will also not appear in the ToC or bookmarks of the PDF.

**(3) Problem with Points** The points of a problem can be set using command `\problempts{xxx}` before calling the `\section{}` command. These two commands can be simplified to `\problem[xxx]{}`. For example, using the command `\problem[15]{This is a Problem Worth 15 Points}` will have:<sup>1</sup>

### Problem 1: This is a Problem Worth 15 Points (15 points)

Note that if the point is an empty string, the point information will not be shown.

**(4) Long Title Compatibility** There is also no problem if the section title is too long.<sup>2</sup>

### Problem 2: I Don't Think that Anyone Will Enjoy Themselves Seeing a Very Very Long Problem That is Worth Twenty Points in this Machine Learning Course (20 points)

**(5) Section Title Name** The name of the section (default name as `problem`) can be changed by using `\renewcommand{\sectionheadname}{Name}`.

**(6) Section Number** The number of the section can be changed, for example `\texttt{\setproblem{4}}` will make the next section number be 5. For experienced L<sup>A</sup>T<sub>E</sub>X users to understand, this command actually change the section counter.

**(7) Solution Declaration** You can use `\startsolution` to declare you start writing the solution. This will reset the section number and it is especially useful when your document contains problems and solutions as two separate parts. There is an option `print` and if you use `\startsolution[print]` you will get:

## SOLUTION

and the word SOLUTION can be changed using command `\renewcommand{\solutionname}{Other Name}`.

## Section 5: Subsection Title (Sub Problem) Settings

**(1) Normal Title** This is a normal title using command `\subproblem{Normal Title}` or alternatively the command `\subsection{Normal Title}`. There is a slight difference between these two commands which is similar to the case stated in §4.1. The command `\subproblem{}` adds the sub problem number in ToC and bookmarks. `\subsection[(\arabic{subsection}) <Title>]{<Title>}` is equivalent to `\subproblem{<Title>}`.

**(2)** Use `\subproblem{}` or `\subsection{}` if only the sub problem number is required (like this line).

**(3) Subsection Number** Similar to `\setproblem{}`, there is also `\setsubproblem{}`.

<sup>1</sup>This title is actually faked in this documentation because I do not want the ToC of this documentation contaminated. But it will look the same.

<sup>2</sup>This title is also faked.

(4) **Subsubsection (Sub Sub Problem)** For completeness, `\subsubsection{}` and `\subsubproblem{}` are provided. One example is §6.5.1, where `\subsubsection[\arabic{subsubsection}]{<Title>}` is equivalent to `\subsubproblem{<Title>}`.

## Section 6: Other Tools

(1) **Equation Numbering** The equation number is within the section (problem), for example

$$\det(\mathbf{A}) = 1 \times \begin{vmatrix} -5 & 3 \\ -6 & 4 \end{vmatrix} - (-3) \times \begin{vmatrix} 3 & 3 \\ 6 & 4 \end{vmatrix} + 3 \times \begin{vmatrix} 3 & -5 \\ 6 & -6 \end{vmatrix} = 1 \times (-2) + 3 \times (-6) + 3 \times 12 = 16, \quad (6.1)$$

which uses the `equation` environment and can be referenced using the command `\eqref{eq:xxx}` with a corresponding `\label{eq:xxx}` in Eq. (6.1).

(2) **Maths Packages** Maths Package `mathtools`, `amssymb`, `amsthm`, `bm` and `nicematrix` are automatically loaded. The `nicematrix` package is especially powerful in terms of writing a matrix. You can find its documentation at <https://ctan.org/pkg/nicematrix>. It is worth noting that `nccmath` can lead to potential subsection (sub problem) title indentation problem and therefore should not be loaded.

(3) **Theorem Environment** Environments `theorem`, `proposition`, `lemma`, `corollary` have been defined. For example:

**Lemma 6.1.** *This is a lemma. Its numbering is within the section. You can create such environment using the code `\begin{lemma}` Your lemma contents here. `\end{lemma}`.*

(4) **Additional Math Operator** The additional math operator is listed in the table below.

Command	Definition	Inline Example
<code>\argmin</code>	<code>\DeclareMathOperator*{\argmin}{\arg\min}</code>	$\arg \min_x (x - 2)^2 + 1$
<code>\argmax</code>	<code>\DeclareMathOperator*{\argmax}{\arg\max}</code>	$\arg \max_{\mathbf{x}} f(\mathbf{x})$

Operators defined with the `*` after `\DeclareMathOperator` have their subscript under the operator in the `equation` mode, which can be suppressed by adding `\nolimits` before the `_`.

Here is an example:

```
\begin{equation}
  \argmin_{\mathbf{x}} (x-2)^2+1, \quad \quad \quad \argmax_{\mathbf{x}} f(\mathbf{x}), \quad \quad \quad \argmin_{\alpha} g(\alpha)
\end{equation}
```

$$\arg \min_x (x - 2)^2 + 1, \quad \arg \max_{\mathbf{x}} f(\mathbf{x}), \quad \arg \min_{\alpha} g(\alpha) \quad (6.2)$$

(5) **Shortcuts** Some shortcuts commands have been defined in this class.

**1. Hint** You can easily use command `\hint{}` to show a hint to a problem. This is especially useful in the `problem` mode. (*Hint: You can use `\renewcommand{\hintstyle}{<Your Style>}` to change the default one.*)

(6) **Code Block** You can use code blocks in this class which is implemented by the `lstlisting` environment. Their default styles have been set and you can make changes by passing optional arguments when using the environment. For more information, please refer to <https://ctan.org/pkg/listings>.

(7) **Fancy Box** A fancy box has been defined.

#### This is a Fancy Box

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin viverra massa rutrum felis vulputate, ac faucibus velit accumsan. Vivamus aliquet felis nec interdum sollicitudin. Nullam ornare eu velit id cursus. Maecenas a sodales velit, vel cursus magna. Cras lobortis venenatis.

You can use the following code to generate it.

```
\begin{fancybox}{This is a Fancy Box}
  Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin viverra
  ↪ massa rutrum felis vulputate, ac faucibus velit accumsan. Vivamus
  ↪ aliquet felis nec interdum sollicitudin. Nullam ornare eu velit id
  ↪ cursus. Maecenas a sodales velit, vel cursus magna. Cras lobortis
  ↪ venenatis.
\end{fancybox}
```

There is also a notice box:

#### This is a Notice Box

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin viverra massa rutrum felis vulputate, ac faucibus velit accumsan. Vivamus aliquet felis nec interdum sollicitudin. Nullam ornare eu velit id cursus. Maecenas a sodales velit, vel cursus magna. Cras lobortis venenatis.

You can use the following code to generate it.

```
\begin{notice}{This is a Notice Box}
  Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin viverra
  ↪ massa rutrum felis vulputate, ac faucibus velit accumsan. Vivamus
  ↪ aliquet felis nec interdum sollicitudin. Nullam ornare eu velit id
  ↪ cursus. Maecenas a sodales velit, vel cursus magna. Cras lobortis
  ↪ venenatis.
\end{notice}
```

## Appendix A: Known Issues

- The section title background height may not be accurate;

If you find more issues, please report them on <https://tvj.one/ml-tex/issues>.

## Appendix B: Change Log

### v1.1 2022/03/28 – Bug Fix and Enhancement

1. Add `\mainproblem{}` command;
2. Add `\subsubproblem{}` command;
3. Add `\hint{}` shortcut;
4. Support for `\section*{}`, `\problem*{}`, `\subsection*{}` and `\subproblem*{}`;

5. Fix ToC/Bookmarks problem;
6. Set footnote line style;
7. Add the `twoside` option.

1. Initial `cls` file in addition to a sample file and documentation;
2. Publish at GitHub and CTAN.

v1.0 2022/03/19 – Initial Version

## Appendix C: Source Code

The source code of `seu-ml-assign.cls` is listed below.

```

15 \NeedsTeXFormat{LaTeX2e}
16 \ProvidesClass{seu-ml-assign}[2022/03/28 SEU Machine Learning Assignment
   ↪ Template]
17
18 %% Class and Options
19 \def\@ptsize{11pt} % font size
20 \DeclareOption{9pt}{\def\@ptsize{9pt}}
21 \DeclareOption{10pt}{\def\@ptsize{10pt}}
22 \DeclareOption{11pt}{\def\@ptsize{11pt}}
23 \DeclareOption{12pt}{\def\@ptsize{12pt}}
24 \def\@solutionmode{1} % default as the solution mode
25 \DeclareOption{solution}{\def\@solutionmode{1}} % solution mode
26 \DeclareOption{problem}{\def\@solutionmode{0}} % problem mode
27 \def\@twoside{0} % default as oneside
28 \DeclareOption{oneside}{\def\@twoside{0}} % one-side document
29 \DeclareOption{twoside}{\def\@twoside{1}} % two-side document
30 \ProcessOptions\relax
31 \LoadClass[a4paper, onecolumn, \@ptsize]{article}
32
33 %% Page Settings
34 \RequirePackage[inner=2.0cm, outer=2.0cm, top=1.2cm, bottom=3.5cm]{geometry}
35 \newcommand{\firstfooteradditionalheight}{2em} % additional height for
   ↪ footer on the first page
36 \hfuzz=.5em % disable false positive of overfull \hbox
37
38 %% Document Properties
39 \global\let\@assignno\@empty
40 \global\let\@semester\@empty
41 \global\let\@studentID\@empty
42 \global\let\@instructor\@empty
43 \global\let\@duedate\@empty
44 \global\let\@author\@empty
45 \global\let\@mainproblem\@empty
46 \newcommand{\assignno}[1]{\gdef\@assignno{#1}} % Assignment Number
47 \newcommand{\semester}[1]{\gdef\@semester{#1}} % Semester
48 \newcommand{\studentID}[1]{\gdef\@studentID{#1}} % Student ID
49 \newcommand{\instructor}[1]{\gdef\@instructor{#1}} % Instructor
50 \newcommand{\duedate}[1]{\gdef\@duedate{#1}} % Due Date of the Assignment
51 \newcommand{\mainproblem}[1]{\gdef\@mainproblem{#1}} % The main problem of
   ↪ the assignment
52
53 %% Fonts and Colors
54 \RequirePackage[T1]{fontenc}
55 \RequirePackage[usenames, dvipsnames]{xcolor}
56
57 %% TikZ Rule

```

```

58 \RequirePackage{tikz}
59 \usetikzlibrary{fadings, calc}
60 \newcommand{\tikzrule}[3][\tikz{\fill[#1] (0,0) rectangle (#2,#3);}}
61
62 %% Sections Settings
63 \RequirePackage[explicit]{titlesec} % explained in
64   ↪ https://tex.stackexchange.com/a/292307/234654
65 \RequirePackage{suffix}
66 % http://mirrors.ctan.org/macros/latex/contrib/titlesec/titlesec.pdf
67 \pgfdeclarelayer{background}
68 \pgfsetlayers{background,main}
69 \global\let\@problempts\@empty
70 \newcommand{\problempts}[1]{\gdef\@problempts{#1}} % Points of the Problem
71 \newcommand{\problemptsprint}{\ifx\@problempts\@empty\else(\@problempts~points)\fi}
72 \newcommand{\sectionheadname}{Problem} % Name for the Section (default as
73   ↪ 'Problem')
74 % Reference: https://tex.stackexchange.com/a/12269/234654
75 \newcommand{\boxedsection}[4][blue!20]{%
76   \begin{tikzpicture}[inner sep=0pt, inner ysep=0.3ex]
77     \node[anchor=base west] at (0,0) (counter) {#2};
78     \path let \p1 = (counter.base east) in node[anchor=base west, text
79       ↪ width={\textwidth-\x1-#4}] (content)
80       at ($ (counter.base east)+(#4,0)$) {#3};
81     \begin{pgfonlayer}{background}
82       \shade[left color=#1,right color=white] let
83         ↪ \p1=(counter.north), \p2=(content.north) in
84         (0,{max(\y1,\y2)}) rectangle (content.south east);
85     \end{pgfonlayer}
86   \end{tikzpicture}
87 }
88 % For numbered section, i.e. \section{}
89 \titleformat{\section}% <command>
90   {\Large\bfseries}% <format>
91   {}% <label>
92   {0pt}% <sep>
93   {\boxedsection{\sectionheadname}{\thesection:}{#1}{0.33em}}%
94   ↪ <before-code>
95   [%
96     \vspace{-2.2\baselineskip}\hfill{\normalfont\small\problemptsprint}%
97     \problempts}% clear the problem points
98   ]% <after-code>
99 % For unnumbered section, i.e. \section*{}
100 \titleformat{name=\section,numberless}% <command>
101   {\Large\bfseries}% <format>
102   {}% <label>
103   {0pt}% <sep>
104   {\boxedsection{}{#1}{0em}}% <before-code>
105   [%
106     \vspace{-2.2\baselineskip}\hfill{\normalfont\small\problemptsprint}%
107     \problempts}% clear the problem points
108   ]% <after-code>
109 \newcommand{\setproblem}[1]{\ifx#1\@empty\else\setcounter{section}{#1}\fi}
110   ↪ % force the number of problem
111 \newcommand{\setsubproblem}[1]{\ifx#1\@empty\else\setcounter{subsection}{#1}\fi}
112   ↪ % force the number of subproblem
113 \newcommand{\problem}[2][\problempts{#1}\section[\thesection~#2]{#2}}%
114 \WithSuffix\newcommand\problem*[2][\problempts{#1}\section*{#2}}%
115 \newcommand{\solutionname}{Solution}%
116 \newcommand{\startsolution}[1][print]{%

```



```

110 \setproblem{0}% reset the section counter
111 \def\startsolutionprintoption{print}
112 \def\startsolutionprintuseroption{#1}
113 \ifx\startsolutionprintuseroption\startsolutionprintoption{%
114     {%
115         \fontfamily{LinuxLibertineT-OsF}\selectfont% select font as
116         ↪ Linux Libertine
117         \centering\LARGE\scshape%
118         \vspace{\baselineskip}%
119         \solutionname{}\ll[-0.2em]%
120     }%
121     \noindent%
122     \tikzrule[WildStrawberry, path fading=west]{.5\textwidth}{.2em}%
123     \tikzrule[WildStrawberry, path fading=east]{.5\textwidth}{.2em}%
124 }%
125 \titlespacing*{\section}{0em}{2.5\baselineskip}{1\baselineskip}
126 \titleformat{\subsection}[runin]{\large\bfseries}{(\arabic{subsection})}{0.33em}{#1}
127 \newcommand{\subproblem}[1]{\subsection[(\arabic{subsection}) #1]{#1}}
128 \WithSuffix\newcommand\subproblem*[1]{\subsection*{#1}}
129 \titleformat{\subsubsection}[runin]{\bfseries}{\arabic{subsubsection}.}{0.33em}{#1}
130 \newcommand{\subsubproblem}[1]{\subsubsection[(\arabic{subsubsection}).
131 ↪ #1]{#1}}
132 \WithSuffix\newcommand\subsubproblem*[1]{\subsubsection*{#1}}
133 %% Maths Settings
134 \RequirePackage{mathtools}
135 \RequirePackage{amssymb}
136 \RequirePackage{amsthm} % proof environment and others
137 \RequirePackage{bm} % \bm command
138 \RequirePackage{nicematrix}
139 \numberwithin{equation}{section}
140 \newtheorem{theorem}{Theorem}[section]
141 \newtheorem{proposition}{Proposition}[section]
142 \newtheorem{lemma}{Lemma}[section]
143 \newtheorem{corollary}{Corollary}[section]
144 \newcommand{\hintstyle}{\itshape}
145 \newcommand{\hint}[1]{(\hintstyle Hint: #1)}
146 \DeclareMathOperator*\argmin{\arg\min}
147 \DeclareMathOperator*\argmax{\arg\max}
148
149 %% Code Block Settings
150 \RequirePackage{listings}
151 \definecolor{dkgreen}{rgb}{0,0.5,0}
152 \definecolor{gray}{rgb}{0.5,0.5,0.5}
153 \definecolor{mauve}{rgb}{0.58,0,0.82}
154 \lstset{
155     numbers=left,
156     frame=tb,
157     aboveskip=3mm,
158     belowskip=3mm,
159     showstringspaces=false,
160     columns=fixed,
161     framerule=1pt,
162     rulecolor=\color{gray!35},
163     backgroundcolor=\color{gray!5},
164     basicstyle={\ttfamily\small},
165     numberstyle=\footnotesize\color{gray},
166     keywordstyle=\bfseries\color{MidnightBlue!95!black},

```



```

167     commentstyle=\color{dkgreen},
168     stringstyle=\color{mauve},
169     breaklines=true,
170     breakatwhitespace=true,
171     tabsize=2,
172     extendedchars=false,
173     postbreak=\mbox{\hspace{-1.4em}\textcolor{purple}{\hookrightarrow}\space}
174 }
175
176 %% Captions Settings
177 \RequirePackage[font=footnotesize,labelfont=bf]{caption}
178
179 %% Color Boxes
180 \RequirePackage[many]{tcolorbox}
181 \RequirePackage{varwidth}
182 \newtcolorbox{fancybox}[2][{}]{enhanced,skin=enhancedlast jigsaw,
183     attach boxed title to top left={xshift=-4mm,yshift=-0.5mm},
184     fonttitle=\bfseries\sffamily,varwidth boxed title=0.7\linewidth,
185     colbacktitle=blue!45!white,colframe=red!50!black,
186     interior style={top color=blue!10!white,bottom color=red!10!white},
187     boxed title style={empty,arc=0pt,outer arc=0pt,boxrule=0pt},
188     underlay boxed title={
189         \fill[blue!45!white] (title.north west) -- (title.north east)
190         -- +(\tcboxedtitleheight-1mm,-\tcboxedtitleheight+1mm)
191         -- ([xshift=4mm,yshift=0.5mm]frame.north east) -- +(0mm,-1mm)
192         -- (title.south west) -- cycle;
193         \fill[blue!45!white!50!black] ([yshift=-0.5mm]frame.north west)
194         -- +(-0.4,0) -- +(0,-0.3) -- cycle;
195         \fill[blue!45!white!50!black] ([yshift=-0.5mm]frame.north east)
196         -- +(0,-0.3) -- +(0.4,0) -- cycle; },
197     title={#2},#1
198 }
199 \newtcolorbox{notice}[2][{}]{enhanced,
200     colframe=blue!50!black,colback=blue!10!white,colbacktitle=blue!5!yellow!10!white,
201     fonttitle=\bfseries,coltitle=black,attach boxed title to top center=
202     {yshift=-0.25mm-\tcboxedtitleheight/2,yshiftttext=2mm-\tcboxedtitleheight/2},
203     boxed title style={boxrule=0.5mm,
204     frame code={ \path[tcb fill frame] ([xshift=-4mm]frame.west)
205     -- (frame.north west) -- (frame.north east) -- ([xshift=4mm]frame.east)
206     -- (frame.south east) -- (frame.south west) -- cycle; },
207     interior code={ \path[tcb fill interior] ([xshift=-2mm]interior.west)
208     -- (interior.north west) -- (interior.north east)
209     -- ([xshift=2mm]interior.east) -- (interior.south east) --
210     ↪ (interior.south west)
211     -- cycle; } },
212     title={#2},#1
213 }
214
215 %% Footnote Settings
216 \RequirePackage[bottom]{footmisc} % glue footnote to bottom
217 \renewcommand{\footnoterule}{\noindent\tikzrule[SeaGreen,path
218     ↪ fading=east]{.4\textwidth}{.1em}}
219 \renewcommand{\footnotesep}{1em}
220
221 %% Header and Footer
222 \RequirePackage{fancyhdr}
223 \RequirePackage[colorlinks=true,urlcolor=blue,linkcolor=purple,
224     ↪ citecolor=red,hypertextnames=false]{hyperref}
225 \setlength{\headheight}{52pt}

```

```

223 \setlength{\marginparwidth}{2cm}
224 \pagestyle{fancy}
225 \if\@twoside0
226   \lhead{
227     \fontfamily{LinuxLibertineT-0sF}\selectfont
228     \if\@@solutionmode1
229       \textsc{\@title~\@assignno} -- \@studentID~\@author
230     \else
231       \textsc{Machine Learning \@title~\@assignno}
232     \fi
233   }
234   \rhead{\thepage}
235   \renewcommand\headrule{\vspace{-0.7em}\tikzrule[BrickRed, path
    ↪ fading=east]{.5\textwidth}{0.3mm}}
236 \else
237   \fancyhf{}
238   \renewcommand\headrule{%
239     \ifodd\thepage
240       \vspace{-0.7em}\tikzrule[BrickRed, path
    ↪ fading=east]{.5\textwidth}{0.3mm}
241     \else
242       \vspace{-0.7em}\hfill\tikzrule[BrickRed, path
    ↪ fading=west]{.5\textwidth}{0.3mm}
243     \fi
244   }
245   \fancyhead[L0]{
246     \fontfamily{LinuxLibertineT-0sF}\selectfont
247     \if\@@solutionmode1
248       \textsc{\@title~\@assignno} -- \@studentID~\@author
249     \else
250       \textsc{Machine Learning \@title~\@assignno}
251     \fi
252     \renewcommand\headrule{\vspace{-0.7em}\tikzrule[BrickRed, path
    ↪ fading=east]{.5\textwidth}{0.3mm}}
253   }
254   \fancyhead[RE]{
255     \fontfamily{LinuxLibertineT-0sF}\selectfont
256     \textsc{Machine Learning \@title~\@assignno}
257   }
258   \fancyhead[LE,R0]{\thepage}
259 \fi
260 \cfoot{}
261 % header and footer style for the first page
262 \fancypagestyle{firstpage}{
263   \renewcommand\headrule{}
264   \lhead{}
265   \rhead{}
266   \cfoot{
267     \fontfamily{LinuxLibertineT-0sF}\selectfont
268     \vspace*{-\firstfooteradditionalheight}
269     \vspace{-1.5em}
270     \tikzrule[purple, path fading=west]{.5\textwidth}{.15em}%
271     \tikzrule[purple, path fading=east]{.5\textwidth}{.15em}
272
273     \footnotesize\centering
274     \if\@@solutionmode1
275
276   \else
277

```

```

278     \fi
279   }
280 }
281
282 %% Title Settings
283 \RequirePackage{tabularx}
284 \RequirePackage{afterpage}
285 \newcommand{\pdftitleadditionalname}{Solution}
286 \makeatletter
287 \renewcommand\maketitle{
288
289   \if\@solutionmode0
290     \ifx\@instructor\@empty
291       \let\@instructor\@author % author is the instructor (if not
292         ↪ specified)
293     \else
294       \ifx\@author\@empty
295         \let\@author\@instructor % instructor is the author (if not
296         ↪ specified)
297     \fi
298   \fi
299
300   \thispagestyle{firstpage}
301   \fontfamily{LinuxLibertineT-OfF}\selectfont % set font as Linux
302     ↪ Libertine
303   \enlargethispage{-\firstfooteradditionalheight} % make room for the
304     ↪ footer
305   \begin{minipage}{10.5cm}
306     \centering
307     {
308       \fontsize{25}{0}\selectfont
309       \textcolor{Plum}{\scshape Algorithmic Game Theory}
310     }\\[.5em]
311     {
312       \if\@solutionmode1
313         \@studentID~\@author
314         \qqquad
315       \fi
316       \textit{Instructor:~\@instructor}
317     }
318   \end{minipage}
319   \begin{minipage}{5cm}
320     \vspace{0.7em}
321     \centering
322     {
323       \large
324       \fontfamily{LinuxBiolinumT-OfF}\selectfont
325       \textcolor{BrickRed}{\@semester}
326       \vspace{2mm}
327     }
328     \LARGE\@title~{\fontfamily{bch}\selectfont\@assignno}
329   \end{minipage}
330   \\[.3em]
331   \tikzrule[cyan, path fading=east]{\textwidth}{.4em}
332
333   \ifx\@mainproblem\@empty
334     \vspace{2mm}
335   \else

```

```
333     \begin{center}
334         \vspace{-1\baselineskip}\color{RoyalPurple!50!black}
335         \LARGE\mathcal{S}\sim\mathcal{S}
336     \end{center}
337 \fi
338
339 \fontfamily{cmr}\selectfont % Computer Modern
340
341 % Set up document meta data
342 % Note that it should be placed here because
343 % by now \author and \title have been set.
344 \hypersetup{
345     pdfauthor={\author},
346     pdftitle={%
347         \@title~\@assignno~
348         \if\@solutionmodel
349             \pdftitleadditionalname{}
350         \fi
351         - Algorithmic Game Theory%
352     },
353     pdfsubject={Algorithmic Game Theory},
354     pdfkeywords={%
355         Algorithmic Game Theory, \@title%
356         \ifx\@mainproblem\@empty\else%
357             , \@mainproblem%
358         \fi%
359     },
360     pdfcreator={LaTeX with SEU-ML-Assign class},
361     pdfproducer={LaTeX}
362 }
363 }
364 \makeatother
```