Assignment 1

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1 The first problem

You may briefly state how you solve this problem here

if you happen have anything to highlight

1.1 The first part of the problem

in the first subsection, build a list with `\begin{rlisting}`

- just write something random
- another random line

build an ordered list with `\begin{renum}`

1. just write something random
2. another random line

1.2 The second part of the problem

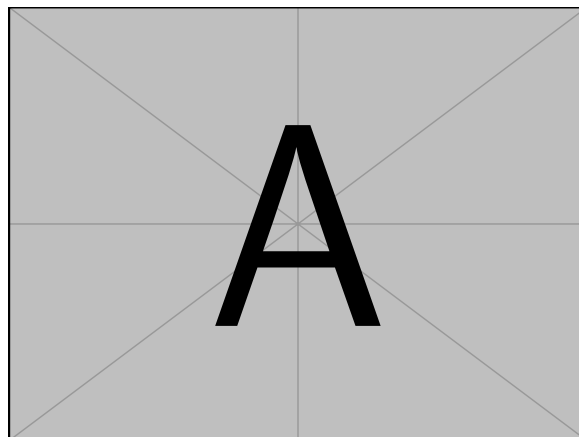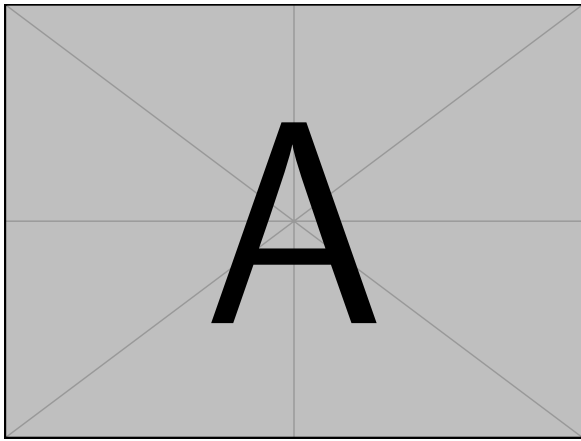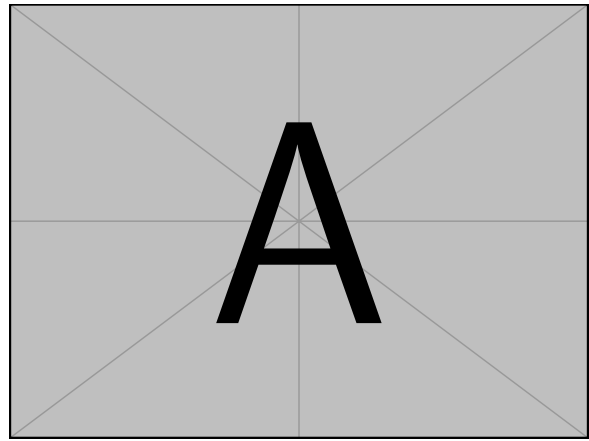in the second subsection, insert a figure

Figure 1: Add captions here

Two figures with individual numbering and caption. Comment out `\caption{}` to remove individual caption for subfigures.

(a) some comments on this figure

(b) some other comments

Figure 2: Geometrical figures

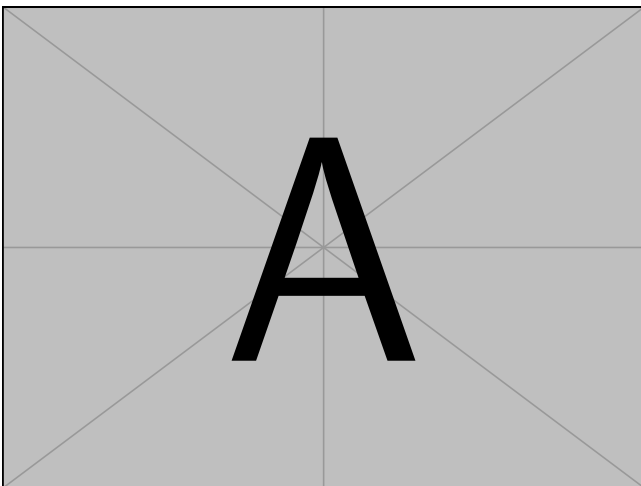Text with picture left-right structure, remember to keep the blank line below (maybe not very useful)

Figure 3: some comments

aa	bb
cc	dd

Table 1: Table caption

Maybe you need to cite something [1], and you can specify the IEEE style by using in the end `\bibliographystyle{ieee_fullname}`, Elsevier Style with `elsarticle-num` and Harvard Style with `elsarticle-harv0`. After this, please compile the tex file with `pdflatex->bibtex->pdflatex->pdflatex`. If the main text has not cited anything, just use `pdflatex`

Sometimes we need to start a new page with `\newpage` for a new question.

2 A new section for a new problem

2.1 the first step

this is for inserting codes with or without a bounding box, remember to use `PDFLaTeX`

```python
import numpy as np
def some_function(some_variables):
    pass
# even put an under line in codes
undelrine
```

You will need to explain the codes a bit.

```python
import numpy as np
def some_function(some_variables):
    pass
```

You will need to explain the codes a bit.

2.2 the second step

We may need to type matrix equations

$$T = \begin{bmatrix} m_u & 0 & 0 \\ 0 & m_v & 0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} 1 & 0 & u_0 \\ 0 & 1 & v_0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} f & 0 & 0 \\ 0 & f & 0 \\ 0 & 0 & 1 \end{bmatrix} = \begin{bmatrix} fm_u & 0 & u_0 \\ 0 & fm_v & v_0 \\ 0 & 0 & 1 \end{bmatrix}. \tag{1}$$

If you don't want the auto numbering

$$T = \begin{bmatrix} m_u & 0 & 0 \\ 0 & m_v & 0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} 1 & 0 & u_0 \\ 0 & 1 & v_0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} f & 0 & 0 \\ 0 & f & 0 \\ 0 & 0 & 1 \end{bmatrix} = \begin{bmatrix} fm_u & 0 & u_0 \\ 0 & fm_v & v_0 \\ 0 & 0 & 1 \end{bmatrix}.$$

or build a table to present data

Table 2: Some random numbers

(α, u)	0.7	0.8	0.9	1
1	25.3183	25.5442	25.7192	25.8589
2	36.8104	37.6098	38.2343	38.7359
3	44.1152	46.6144	48.6152	50.2597
4	39.3190	44.5661	48.3255	51.3635
5	18.0562	35.4232	42.3844	47.0238

References

[1] Martin Danelljan, Gustav Häger, Fahad Khan, and Michael Felsberg. Accurate scale estimation for robust visual tracking. In British Machine Vision Conference, Nottingham, September 1-5, 2014. BMVA Press, 2014.