

# Latex cheat sheet : Mobile and Cloud Computing Seminar - MTAT.03.280

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Your abstract goes here.... This is a supplementary file for the lecture on *Software stack for Research writing*<sup>1</sup> in *Mobile and Cloud Computing Seminar*. This demonstrate some basic latex commands related to figures, table, math, algorithms, etc.

Additional Key Words and Phrases: Latex, ACM, Software stack, Cheetsheet

## ACM Reference Format:

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## 1 SECITON-1 : INTRODUCTION

Introduction of the paper goes here....

### 1.1 This is subsec.

#### 1.1.1 This is subsub sec.

## 2 MATHEMATICAL EQUATIONS & SYMBOLS

In following section we will have some examples, how to write mathematical equations in Latex.

Please use following package:

```
\usepackage{amsmath}
```

### Example-1:

Hello student, here is the first math equation example. For this inline equation  $c = a + b$ , below is the output.

### Output:

Hello student, here is the first math equation example. For this inline equation  $c = a + b$ , below is the output.

### Example-2:

Hello student, here is the second math equation example. This same equation can be wrapped in equation environment  $c = a + b$

### Output:

Hello student, here is the second math equation example. This same equation can be wrapped in equation environment

$$c = a + b$$

<sup>1</sup><https://courses.cs.ut.ee/2022/mcsem/spring/Main/Seminars>

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$$c = a + b \quad (1)$$

### More Examples:

#### Example:

Writing equations in *equation* environment

$$L_i^a = \max_{\forall S_j \in N^s} \{L_{ij}^a\}, \quad i \neq j \quad (2)$$

#### Example:

Writing equations in *equation* environment without equation number:

$$L_i^a = \max_{\forall S_j \in N^s} \{L_{ij}^a\}, \quad i \neq j \text{ text here.}$$

#### Example:

$$\beta = \begin{cases} 1 & \text{if } \alpha = \text{Class 3, less delay sensitive VN} \\ 2 & \text{if } \alpha = \text{Class 2, mderately delay sensitive VN} \\ 3 & \text{if } \alpha = \text{Class 1, highly delay sensitive VN} \end{cases} \quad (3)$$

#### Example:

$$\beta = \begin{cases} 1 & \text{if } \alpha = \text{Class 3, less delay sensitive VN} \\ 2 & \text{if } \alpha = \text{Class 2, mderately delay sensitive VN} \\ 3 & \text{if } \alpha = \text{Class 1, highly delay sensitive VN} \end{cases} \quad (4)$$

#### Example:

Multi-column option

$$\begin{aligned} t &= (a + b) * (a + b) \\ &= \{a * (a + b) + b * (a + b)\} \\ &= a^2 + b^2 + 2 * a * b \end{aligned}$$

[?]

#### Example:

$$t = (a + b) * (a + b) \quad (5)$$

$$= \{a * (a + b) + b * (a + b)\} \quad (6)$$

$$= a^2 + b^2 + 2 * a * b \quad (7)$$

#### Example:

Multiple lines, with *nonumber* option

$$t = (a + b) * (a + b)$$

$$= \{a * (a + b) + b * (a + b)\}$$

$$= a^2 + b^2 + 2 * a * b \quad (8)$$

**Example:**

$$\underbrace{\begin{bmatrix} \exp(-\gamma) & \dots & \exp(-\gamma\|x_1 - x_N\|^2) \\ \exp(-\gamma) & \dots & \exp(-\gamma\|x_2 - x_N\|^2) \\ \dots & \dots & \dots \\ \exp(-\gamma) & \dots & \exp(-\gamma\|x_N - x_N\|^2) \end{bmatrix}}_{\Phi} \underbrace{\begin{bmatrix} w_1 \\ w_2 \\ \dots \\ w_N \end{bmatrix}}_w = \underbrace{\begin{bmatrix} y_{m1} \\ y_{m2} \\ \dots \\ y_{mN} \end{bmatrix}}_y \quad (9)$$


Matrix related examples: **Example:**

## 3 FIGURES

*Did you use the wizard to insert this pic?*

## 3.1 Wrapping the figures

Do not forget to include the following package  
`\usepackage{wrapfig}`

Home  
 Welcome to the Mobile & Cloud Computing Laboratory (Mobile & Cloud Lab) at Institute of Computer Science, Faculty of Science and Technology, University of Tartu.  
  
**Mobile & Cloud Lab**  
 Mobile & Cloud Lab conducts research and teaching in the mobile computing and cloud computing domains. Our research topics include cloud computing, mobile application development, mobile cloud, mobile web services, Internet of Things and migrating scientific computing and enterprise applications to the cloud.

The group was founded by Prof. Dr. Satish Narayana Srirama. Mobile Cloud Lab together with Prof. Eero Vainikko ( Head of Distributed Systems Chair, 2nd from left ) Mobile Cloud Lab together with Prof. Eero Vainikko ( Head of Distributed Systems Chair, 2nd from left )

## 4 TABLES

Country List		
Country Name or Area Name	ISO ALPHA 2 Code	ISO ALPHA 3
Afghanistan	AF	AFG
Aland Islands	AX	ALA
Albania	AL	ALB
Algeria	DZ	DZA
Andorra	AD	AND
Angola	AO	AGO

## 4.1 A tricky table

Open Ms Word -> insert table -> populate table -> *Layout* menu -> *Size* -> resize page size -> export PDF

Item 1		
Items2	vdfvds	vsdf
mhj	vdf	vsfdv
dfv	vdsvfv	sfvdf
vvvvvv	dfvdfdv	vdfv
njjhm	sdfv	sdv

## 5 BULLET AND NUMBERING

**Example:**

The constraints of the function are described as follows.

- The constraint shown in Eq. 1 ensures each VM is ....
- The constraint shown in Eq. 2 ensures that VN request ....
- The constraint shown in Eq. 3 refers to embedding the VM ...
- $\omega_x$  and  $\omega_n$  are the constants introduced to as...

**Example:**

The constraints of the function are described as follows.

- (1) The constraint shown in Eq. 1 ensures each VM is ....
- (2) The constraint shown in Eq. 2 ensures that VN request ....
- (3) The constraint shown in Eq. 3 refers to embedding the VM ...
- (4)  $\omega_x$  and  $\omega_n$  are the constants introduced to as...

**Example:**

you can use your own symbol:

- (1) The constraint shown in Eq. 1 ensures each VM is ....
- ★ The constraint shown in Eq. 2 ensures that VN request ....
- ⊙ The constraint shown in Eq. 3 refers to embedding the VM ...
- ⊗  $\omega_x$  and  $\omega_n$  are the constants introduced to as...

**Example:**

An example of nested list:

- (1) The constraint shown in Eq. 1 ensures each VM is ....
- (2) The constraint shown in Eq. 2 ensures that VN request ....
  - (a) The constraint shown in Eq. 3 refers to ...
  - (b)  $\omega_x$  and  $\omega_n$  are the constants introduced to as...

**Example:**

Another example of nested list:

- The constraint shown in Eq. ?? ensures each VM is ....
- The constraint shown in Eq. 2 ensures that VN request ....
  - The constraint shown in Eq. 3 refers to ...
  - $\omega_x$  and  $\omega_n$  are the constants introduced to as...

## 6 ALGORITHMS

## 7 CITATION &amp; REFERENCES

[Conti et al. 2009] [Werneck et al. 2000] dsbkvajd... [Jonas et al. 2019] The introduction of thie paper is given in Section 1 The line is in Line 2.

## 8 BONUS: TODO

Do not forget to use followig packages:

```
\usepackage[table]{xcolor}
\usepackage{todonotes}
\usepackage{menukeys}
```

Fig. 1. No long caption




---

**Algorithm 1:** Algorithm for data authorizer

---

```

Data: ipStream  $\leftarrow$  input data stream
Result: Authorized output data stream
1 data  $\leftarrow$  convertToJSON(ipStream);
  /* Here is a comment line. */
2 src  $\leftarrow$  data["source"];
3 srcList  $\leftarrow$  getSourceRegistry();
4 if src in srcList then
5   | data["Authorization"] = "AUTHORIZED";
6 else
7   | data["Authorization"] = "UNAUTHORIZED";
8 end
9 retData  $\leftarrow$  dumpJSON(data);
10 while cont1 == True do
11   | while statement1;
12   | while statement2;
13 end
14 return retData;
```

---



Fig. 2. MC Lab Logo

this  
is  
todo  
list.

Explore todo package here <http://tug.ctan.org/macros/latex/contrib/todonotes/todonotes.pdf>

## REFERENCES

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