



ML and FinTech

Huei-Wen Teng

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<https://hackmd.io/@hwteng/HyKOPoA6d>

Outline

1. About ME
2. Syllabus
3. FinTech
4. Stat, ML, and AI
5. More



Education

← Education

 **Penn State University**
Doctor of Philosophy (Ph.D.), Statistics
2005 - 2010

Skills: 資料分析

 **National Taiwan University**
MBA, Finance
2002 - 2004

Skills: 資料分析

 **Johannes Kepler Universität Linz**
Exchange Student
Aug 2000 - Jan 2001

 **National Taiwan University**
Bachelor of Science (BS), Mathematics
1997 - 2001



Experience



National Central University

6 yrs 6 mos

- **Associate Professor**

Aug 2016 - Jan 2017 · 6 mos

- **Assistant Professor**

Aug 2010 - Jul 2016 · 6 yrs

Research, teaching.

Experience



National Yang Ming Chiao Tung University

3 yrs 8 mos

Hsinchu City, Taiwan, Taiwan · On-site

- **Professor**

Full-time

Aug 2024 - Present · 2 mos

- **Quantitative Finance and Monte Carlo Simulation**

- **Associate Professor**

Feb 2021 - Jul 2024 · 3 yrs 6 mos

- **Quantitative Finance and Monte Carlo Simulation**



Experienced Researcher

IDA Institute Digital Assets · Part-time

Apr 2024 - Present · 6 mos

Bucharest, Romania · On-site



Associate Professor

National Chiao Tung University

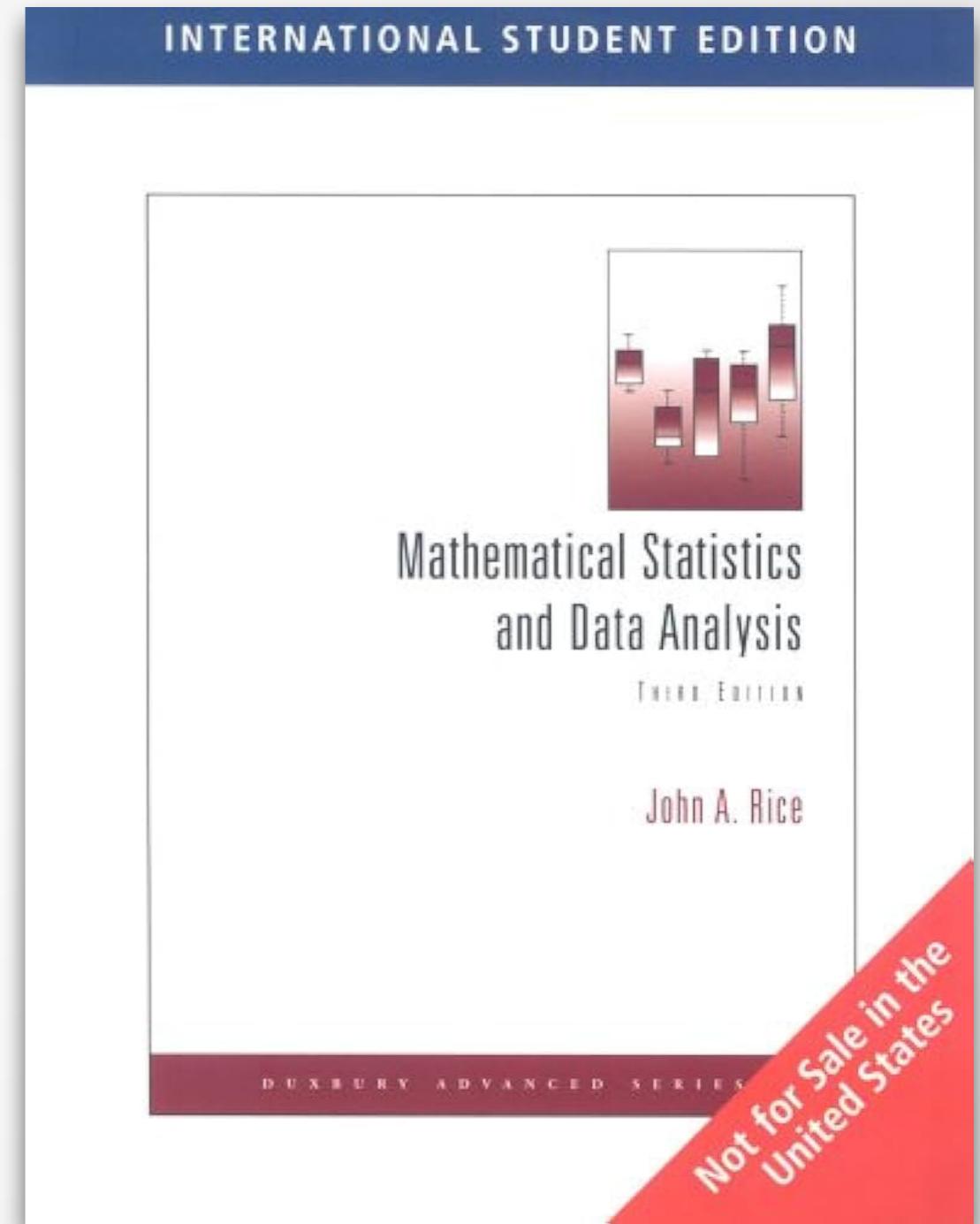
Feb 2017 - Jan 2021 · 4 yrs

台灣 Taiwan 新竹市 · On-site



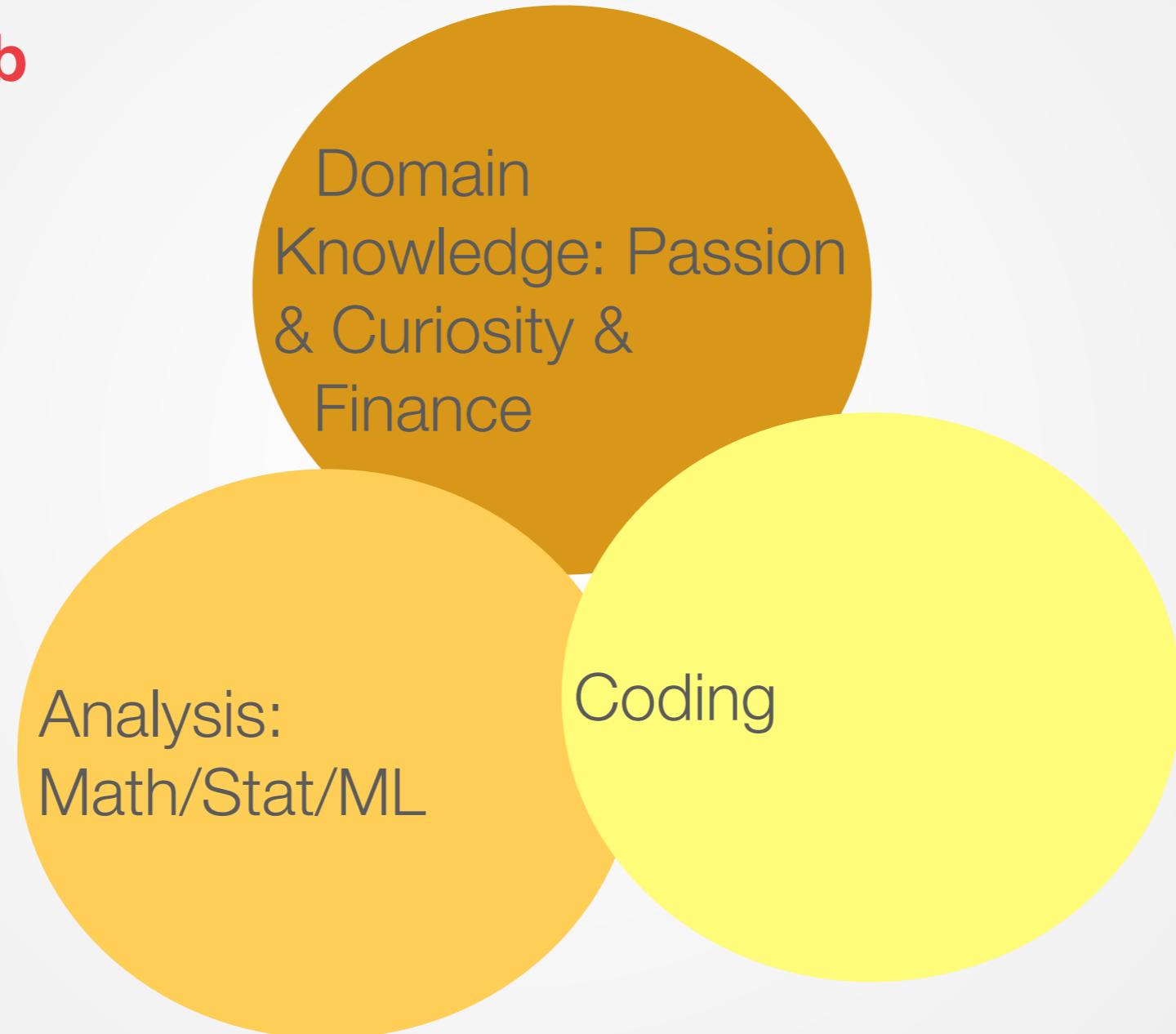
Introduction

- Must: Laptop & internet: In-class exercises in a group
- GitHUB: <https://github.com/HWTeng-Teaching/>
- E3: scores and announcement
- TA: 施昱全 (James) Email: ya10742@gmail.com



Presentations, presentations, presentations!

- **Qxx_xx.md**
- **Qxx_xx.ipynb**
- **Vedios**



Grading policy

Item	Topic	
1	Infrustructure: (1) gitHUB, (2) linkedIn, (3) teams (upload vedios), (4) Quantinars account	4% Google Forms to collect info
2	Participation: Attendance, in-class exercises, feedback	16% Google Forms to collect info
3	Hw: Upload hw, solutions and links of vedios in gitHUB	20%
4	Exam 1: Oct 8 (Close book, no cheetsheets)	20%
5	Exam 2: Nov 12	20%
6	Exam 3: Dec 17	20%
	sum	100%



HW

- Qxx_xx.md:
 - Question
 - Solutions
 - Links to vedios of the solution
- Qxx_xx.ipynb (Not required for each question)

James will provide an example!



Tools

- Markdown使用說明
- <https://hackmd.io/8nPfj8X7Rc2UhkhfjYAbkw?both>



Institute of Digital Assets

<https://ida.ase.ro/>

The screenshot shows the homepage of the Institute of Digital Assets (IDA). The header features the IDA logo and a search bar. Below the header, there are four main navigation links: "WHAT IS IDA?", "OUR TEAM", "Q2 ECOSYSTEM", and "PRODUCTS". The "WHAT IS IDA?" section contains a large blue banner with the text "Institute For Digital Assets" and a subtitle about global research and education. A red button labeled "IDA Ecosystem >" is visible. The "OUR TEAM" section displays a grid of six team member portraits. The "Q2 ECOSYSTEM" section highlights two products: "Financial Risk Meter" and "Digital Art Index". The "PRODUCTS" section includes a logo for "frm" and a logo for "DÀI Digital Art Index".

Institute For Digital Assets

Global research and educational institution dedicated to advancing the understanding, adoption, and integration of digital assets into the mainstream economy and society.

IDA Ecosystem >

WHAT IS IDA?

OUR TEAM

Q2 ECOSYSTEM

PRODUCTS

Financial Risk Meter

FRM identifies systemic risk levels in different channels (America, Europe, Asia, Euro rates, Cryptos, Itraxx SenFin, SP500, and emerging markets). Its network topology indicates CoStress and systemically provides insights into pre-critical risks.

Digital Art Index

DAI is an Index that uses Hedonic regression models and discounting characteristics of NFT artworks in order to show the fundamental market movements of the NFT art market.

An International Team


Wolfgang Karl Härdle


Daniel Traian Pele


Huei-Wen Teng





frm

DÀI
Digital Art Index

Quantinar <https://www.quantinar.com/>

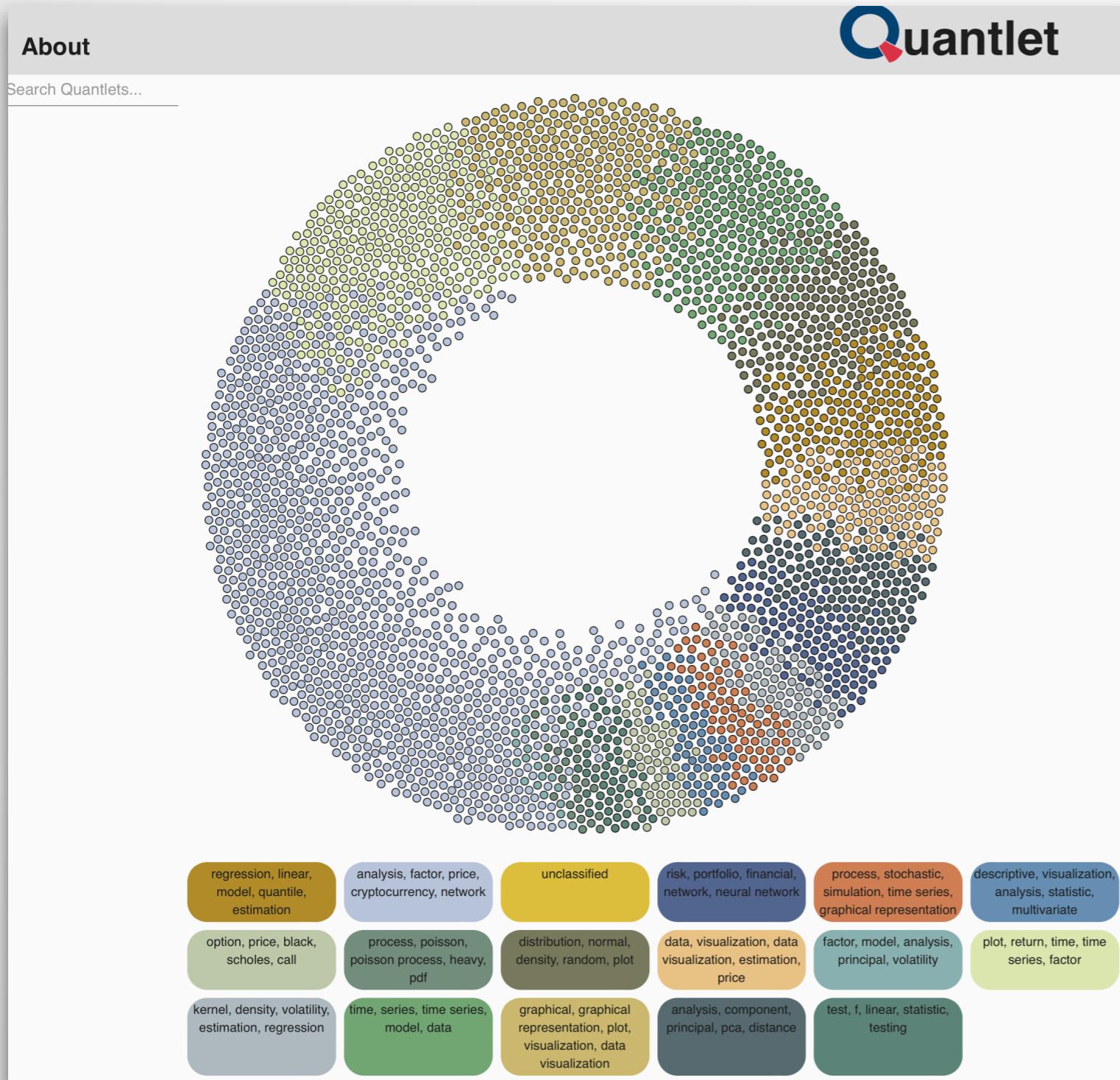
The screenshot shows the Quantinar homepage. At the top, there is a navigation bar with icons for Machine Learning, Digital Economy, Data Science, Cryptocurrency, Fintech, and Blockchain. Below the navigation bar, the Quantinar logo is displayed with the tagline: "A peer-to-peer knowledge platform for top quality research Developed by top quality researchers". The main content area is divided into three sections: Data, Science, and Education. The Data section features a callout for "Get access to rich data resources". The Science section features a callout for "Advance your quantitative analysis skills". The Education section features a callout for "Get educated by the best teachers". Below these sections, there is a "FEATURED CATEGORIES" section with eight categories: Machine Learning, Digital Economy, Data Science, Cryptocurrency, Fintech, Blockchain, Explainable AI, and Maths & Stats. Each category has a corresponding thumbnail image.



- Slides, vedios



Quantlet <https://quantlet.com/>



- Codes, data



Search “ Math Stat Course”

The screenshot shows a search results page for "Math Stat Course" on quantinar.com. The interface includes a header with a lock icon, the website name, and navigation links for categories and uploading courses. Below the header, it says "3 Courses / 18 Courselets". The main content area displays a grid of courselets, each with a thumbnail, title, description, and rating information. The courselets are categorized under "Math Stat Course" and include titles like "Selected Topics of Mathematical Statistics", "Mathematical Statistics", and "Data Science in a math-less Digital Society". Each courselet entry includes a "Courselet" button and a "No Rating (0 ratings)" message.

The screenshot shows a detailed view of a course titled "Math Stat Course" on quantinar.com. The page includes a header with the course title, a "Math Stat Course" section, and a summary of 0 Rating, 0 Reviews, and 4 Students Enrolled. It was created by Wolfgang Härdle on 19th November 2023 and last updated on the same date. The course is in English. The main content area is titled "Course Content" and lists 9 courselets, each with a title, component count, and duration. The courselets are: "Math Stat Chap01" (3 Components, 8 min), "Math Stat Chap02" (1 Components, 0 min), "Math Stat Chap03" (1 Components, 0 min), "Math Stat Chap04" (1 Components, 0 min), "Math Stat Chap05" (1 Components, 0 min), "Math Stat Chap06" (1 Components, 0 min), "Math Stat Chap07" (1 Components, 0 min), "Math Stat Chap08" (1 Components, 0 min), and "Math Stat Chap09" (1 Components, 0 min). A "Expand Courselets" button is located above the courselets list. To the right, there is a sidebar with a Welsh language table titled "THNOS A RHIFAU MEDEG A SAESNEG" and a "Free" section with a "Go to Course" button, tags, and a share link.

When not working, go to “[GitHub/HWTeng-Teaching/](#)





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