



MIT SLOAN SCHOOL OF MANAGEMENT
MIT SCHWARZMAN COLLEGE OF COMPUTING

MAKING AI WORK:

MACHINE INTELLIGENCE FOR BUSINESS AND SOCIETY

ONLINE SHORT COURSE

Gain a systematic approach to thinking about robust, responsible, and beneficial AI deployment that maps out the impact of key choices from development to deployment, and beyond.

ABOUT THIS COURSE

Artificial intelligence (AI) is a powerful tool, capable of improving decision-making in industries as diverse as health care, law, security, criminal justice, and social media. However, AI and machine learning (ML) cannot be separated from their human or societal context and the technology is often unable to transcend human bias, mistakes, adversaries, and behavior. In addition, AI technologies create a range of unintended social and economic consequences, from polarization and spread of misinformation to inequality and joblessness. A holistic approach to AI and its individual, organizational, and societal implications is necessary to understand how to best use and regulate this new technology for the good of all.

The **Making AI Work: Machine Intelligence for Business and Society** online short course from the MIT Sloan School of Management and the MIT Schwarzman College of Computing helps you to navigate this complex landscape. Over six weeks, you'll explore the technical and strategic considerations for robust, beneficial, and responsible AI deployment. You'll examine the various stages of a proprietary ML Deployment Framework and unlock new opportunities by investigating the key challenges and their related impact. Guided by leading experts and MIT academics, you'll build a toolkit for addressing these challenges within your own organization and context.

WHAT THIS COURSE COVERS

This program takes a systematic approach to examining the true impact of AI and then providing the guidance to redirect that impact-trajectory as necessary. It explores the power and limitations of machine learning to equip you with the guiding principles for avoiding unintended consequences of its deployment. To improve issues of robustness and privacy, you'll unpack the potential and vulnerabilities of AI systems, and gain the skills to identify and mitigate key failures of machine learning processes. You'll look at the impact AI can have in your business and discover how effective and responsible AI solutions can be a source of competitive advantage. As you progress through the program, you'll also have the opportunity to consider how AI and machine learning can shape the future of society.

Understand how individuals, businesses, and governments can correct AI's current economic and socio-political path by repurposing AI technology as a tool for inclusive prosperity.



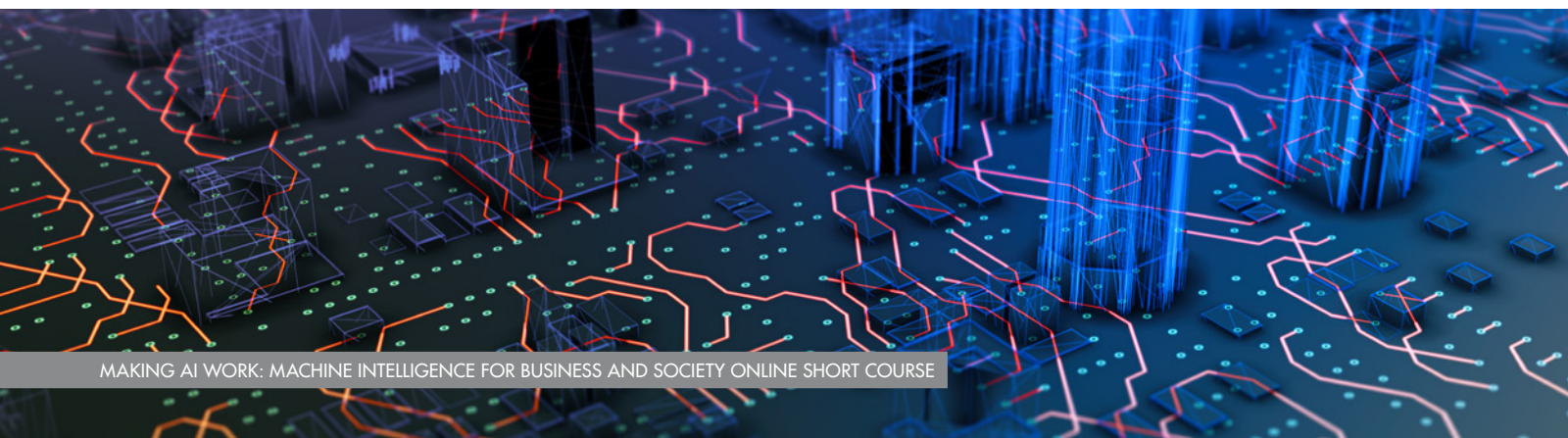
\$2,800



6 weeks, excluding 1 week orientation.



6–8 hours of self-paced learning per week, entirely online.



THIS COURSE IS FOR YOU IF YOU WANT TO:



GAIN A PRACTICAL FRAMEWORK

Use a proprietary MIT ML Deployment Framework to examine the impact of AI across its entire design pipeline.



ENHANCE AI SYSTEMS PERFORMANCE

Understand the vulnerabilities of AI systems, and explore the steps necessary to imbue these systems with robustness and privacy.



MAKE A POSITIVE IMPACT

Develop a strategy for AI implementation that's effective, as well as safe and sensible for individuals, organizations, and society, based on strategic and technical guidance from experts.



IMPROVE AI DECISIONS

Mitigate bias, inequity, and overconfidence by understanding and preparing for the common pitfalls of algorithmic decision-making.

WHO SHOULD TAKE THIS COURSE?

This program is designed for those in leadership positions in both the private and public sector who need to think strategically about data, AI, and the broader impact of technology. Business leaders tasked with making decisions about the deployment of AI technologies will be empowered to guide their organizations toward effective and responsible innovation. The program aims to equip them with the skills to turn predictions into decisions and manage a variety of AI's societal impacts — especially as AI increasingly automates work and decision-making. It would also benefit technical professionals with existing AI and machine learning expertise looking to upskill in order to design better, more human-centered models. This program also serves to bridge the knowledge and communication gap between both groups of participants.

“We’re in a world in which AI is shaping much of daily life, led by digital businesses such as social media and web search which could not operate at their current scale without AI, but extending increasingly to other domains such as logistics, financial services, and myriad emerging areas such as healthcare. Today’s AI not only is capable of operating at human levels, but can perceive patterns that people do not. This can make it extremely powerful, but also underscores the importance of the mastery of AI and its socially beneficial deployment.”

– DANIEL P. HUTTENLOCHER, DEAN, MIT SCHWARZMAN COLLEGE OF COMPUTING

WHAT YOU'LL LEARN

ORIENTATION MODULE

WELCOME TO YOUR ONLINE CAMPUS

You'll be welcomed to the course and begin connecting with fellow participants, while exploring the navigation and tools of your Online Campus. Be alerted to key milestones in the learning path, and review how your results will be calculated and distributed.

You'll be required to complete your participant profile and submit a digital copy of your passport/identity document.

Please note that module titles and their contents are subject to change during course development.

MODULE 1

POWER AND LIMITATIONS OF MACHINE LEARNING

Learn about a systematic approach for identifying and accounting for the broad impacts of AI initiatives.

- Recognize the evolution of artificial intelligence and the implications for technology, business, and society
- Discuss the perils of current machine learning techniques and the opportunities afforded by more human-aligned AI
- Articulate the advantages of a long-term view on AI's impact
- Practice applying three guiding principles in your thinking about AI deployment
- Illustrate the components of the ML Deployment Framework in the context of an AI system

MODULE 2

ROBUSTNESS AND PRIVACY

Explore the vulnerabilities that can lead to AI system failure and the tools for protecting data confidentiality and a system's integrity.

- Review the key failure modes of machine learning systems
- Discuss privacy concerns and solutions in machine learning
- Determine the root causes of machine learning system failure
- Illustrate the challenges of measuring system performance
- Investigate potential distribution-shift sensitivity and the value of robust performance objectives
- Explore formulations and algorithms that imbue robustness in an AI system

WHAT IS MIT SLOAN?

Learn more about
**THE MIT SLOAN
SCHOOL OF
MANAGEMENT**



MODULE 3

RISKS OF USING PREDICTIONS FOR DECISION-MAKING

Discover the challenges, considerations, and necessary adjustments for effective prediction-based algorithmic decision-making.

- Outline how an AI system could be used to assist human decision-making
- Describe the key goals of interpretability
- Show how bias is encapsulated and perpetuated by an AI system
- Interpret definitions of fairness
- Investigate potential sources of bias, inequity, and unfairness within the context of an AI system
- Analyze the actions that can be taken to address bias and fairness in algorithmic decision-making

MODULE 4

HUMAN-TECHNOLOGY INTERACTION

Discover how AI technology and human agents impact one another through signals and feedback loops

- Discuss learning and information aggregation in AI systems
- Illustrate feedback effects and paradoxes that emerge in the context of AI systems
- Deconstruct how AI systems alter the behavior of human users
- Deduce the impact of misaligned platform-user incentives on system outputs
- Predict areas of future misalignment between an AI system and various stakeholders
- Recommend structures and incentives to align AI technology with human and organizational needs

MODULE 5

AI IN YOUR BUSINESS

Learn about the ways firms can utilize AI to their advantage and choices organizations must make when forming their AI strategies, as well as the consequences of those decisions.

- Articulate where automation occurs at the task level and related implications
- Illustrate how organizations can embrace AI technology to complement, rather than compete with, human talent
- Compare the costs and benefits of AI deployment from an organizational perspective
- Analyze the capabilities and advantages of AI within a business context
- Investigate how to enable decision-making, across the organization, that prioritizes responsible AI
- Assess the value of a responsible AI strategy in the context of your industry
- Decide how to build a culture that focuses on human-aligned AI

MODULE 6

AI'S CONTRIBUTION TO INCLUSIVE PROSPERITY

Learn how AI shapes the world and strategic intervention can direct the trajectory toward benevolent outcomes.

- Illustrate main pillars of inclusive prosperity
- Interpret the achievements and failures of inclusive prosperity over the last 70 years
- Explore the future of work based on AI's impact on automation, inequality, and growth so far
- Investigate the role of technology and technological choices, especially concerning automation, in inclusive prosperity
- Recommend measures to redirect AI to better align with inclusive prosperity objectives
- Assess the twin AI challenges, democracy and inequality, and how they reinforce each other

WHO YOU'LL LEARN FROM

These subject matter experts from MIT guide the course design and appear in a number of course videos, along with a variety of MIT guests and industry experts.

YOUR FACULTY DIRECTORS



Aleksander Mądry

Cadence Design Systems Professor of Computing in the Electrical Engineering and Computer Science Department and Member of the Computer Science and Artificial Intelligence Lab (CSAIL), MIT

Mądry is the director of the MIT Center for Deployable Machine Learning and a faculty co-lead of the Schwarzman College of Computing AI Policy Forum. His research spans machine learning, optimization, and algorithmic graph theory. Mądry has a strong interest in building on existing machine learning techniques to create a decision-making toolkit that is reliable and understood enough to be safely and responsibly deployed in the real world.



Asu Ozdaglar

MathWorks Professor of Electrical Engineering and Computer Science and Member of the Laboratory for Information and Decision Systems (LIDS), MIT

Ozdaglar is the deputy dean of academics at MIT Schwarzman College of Computing and head of the MIT electrical engineering and computer science department. Her research expertise includes optimization theory and algorithms, machine learning, game theory, and network analysis with applications in social, economic, and financial networks. Ozdaglar's research focuses on designing incentives and algorithms for data-driven online systems with many diverse human-machine participants.



Daron Acemoglu

MIT Institute Professor of Economics

Acemoglu is an Institute professor at MIT. One of the most-cited economists in recent decades, he is an expert on economic growth, political economy, and inequality. His recent research has focused on the implications of automation and AI on inequality, polarization, and democracy.



Simon Johnson

Ronald A. Kurtz (1954) Professor of Entrepreneurship, MIT Sloan

Johnson is an economist, author, and U.S. federal adviser, and heads the Global Economics and Management group. He co-founded and currently leads the popular Global Entrepreneurship Lab, and teaches MIT's Global Business of Artificial Intelligence and Robotics course.



WHY MIT SLOAN EXECUTIVE EDUCATION?

Learn more about
**THE MIT SLOAN
ADVANTAGE**

MIT GUESTS



Daniel P. Huttenlocher

Dean, MIT Schwarzman College of Computing, and Henry Ellis Warren (1894) Professor of Electrical Engineering and Computer Science



David C. Schmittlein

John C. Head III Dean and Professor of Marketing, MIT Sloan



Thomas W. Malone

Patrick J. McGovern (1959) Professor of Management and Professor of Information Technology, MIT and Director of MIT Center for Collective Intelligence



Danielle Li

Associate Professor, Technological Innovation, Entrepreneurship, and Strategic Management, MIT Sloan



David Rand

Professor of Management Science and Brain and Cognitive Sciences, MIT

INDUSTRY EXPERTS

Frida Polli

Co-Founder and CEO, pymetrics

Sendhil Mullainathan

Roman Family University Professor of Computation and Behavioral Science, Chicago Booth

YOUR SUCCESS TEAM

GetSmarter, with whom MIT Sloan and MIT Schwarzman College is collaborating to deliver this online course, provides a personalized approach to online education that ensures you're supported throughout your learning journey.



HEAD LEARNING FACILITATOR

A subject expert who'll guide you through content-related challenges.



SUCCESS ADVISER

Your one-on-one support, available during University hours (9a.m.–5p.m. EST) to resolve technical and administrative challenges.



GLOBAL SUCCESS TEAM

Available 24/7 to solve your tech-related and administrative queries and concerns.

A POWERFUL COLLABORATION

The MIT Sloan School of Management is collaborating with Stephen A. Schwarzman College of Computing to teach the management and application of the latest technological tools and techniques needed for computing in business. Working with digital education provider GetSmarter, the MIT Sloan and MIT Schwarzman College program is creating a new standard of learning experience; one that is immersive, collaborative, and designed for optimal accessibility for the busy working professional.

ABOUT MIT SLOAN

The MIT Sloan School of Management is one of the [world's leading business schools](#), emphasizing innovation in practice and research, with a mission to develop principled, innovative leaders who improve the world, and to generate ideas that advance management practice. The school's focus on action learning means that students are able to apply concepts learned in the classroom to real-world business settings. Through its collaborative spirit, MIT Sloan welcomes and celebrates diverse viewpoints, creating an environment where new ideas grow and thrive.

ABOUT MIT SCHWARZMAN COLLEGE

The MIT Schwarzman College of Computing is home to one of the [world's top-ranked computer science programs](#), and are pioneers of breakthrough education and research in computing and artificial intelligence. To meet the opportunities and challenges posed by today's and tomorrow's computing technologies, the college is propelling a rapid evolution of computing

fields, advancing the study and practice of social and ethical responsibilities of computing, and creatively connecting computing and AI to every discipline. With a bold vision of reimagining pedagogy and a strong interdisciplinary approach, the MIT Schwarzman College is leading the transformation of computing education and research for the algorithmic future.

ABOUT GETSMARTER

GetSmarter, a 2U, Inc. brand, partners with the world's leading universities and institutions to select, design, and deliver premium online short courses with a data-driven focus on learning gain.

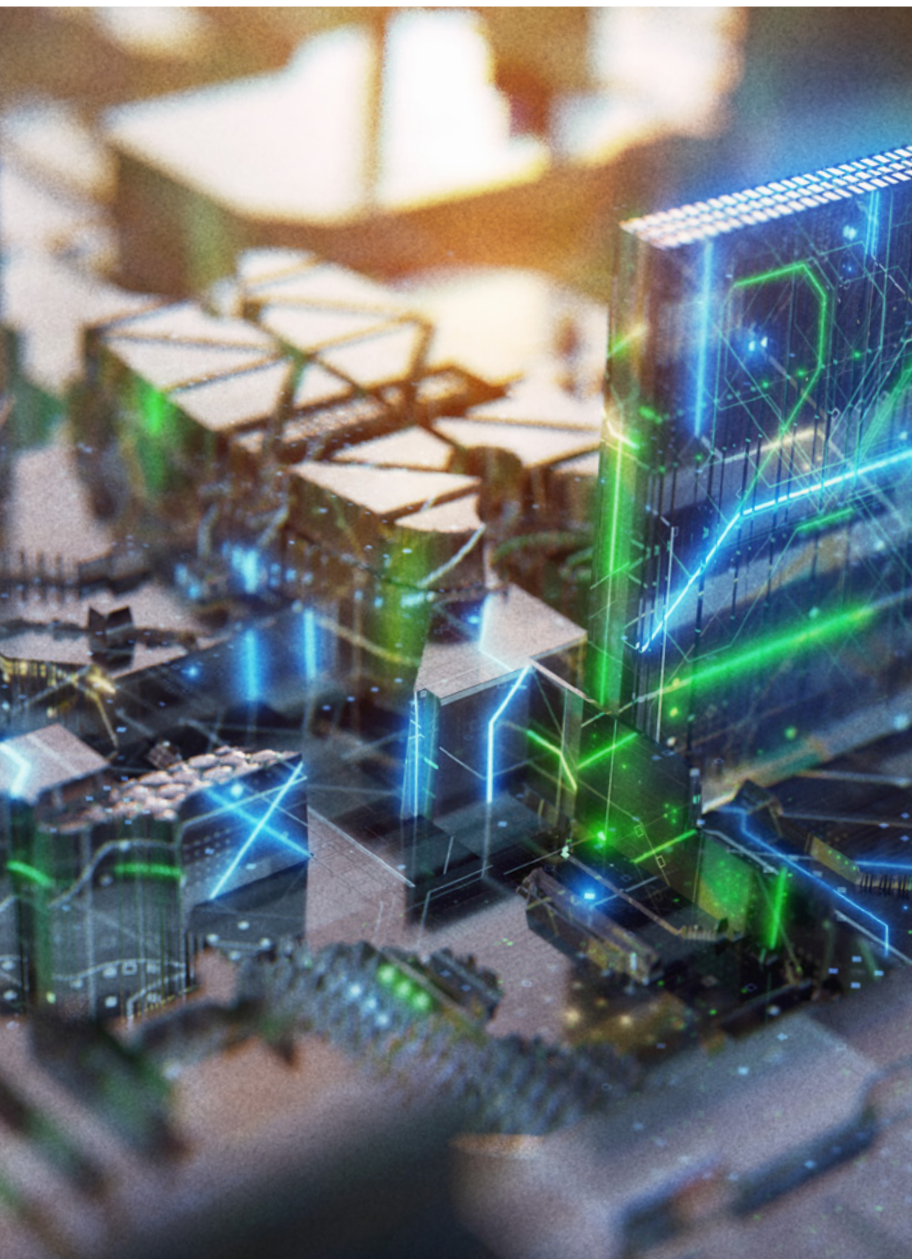
Technology meets academic rigor in GetSmarter's people-mediated model, which enables lifelong learners across the globe to obtain industry-relevant skills that are certified by the world's most reputable academic institutions.

ABOUT THE CERTIFICATE

This program offers you the opportunity to earn a joint digital certificate of completion from the MIT Sloan School of Management — one of the world's leading business schools — and the MIT Schwarzman College of Computing — home to one of the world's top-ranked computer science programs. This program also counts toward an MIT Sloan Executive Certificate, which you can earn upon completion of four programs where at least three of the four come from your chosen certificate track and at least one is completed in person. Find full details [here](#).

Completion is based on a series of practical online assignments. In order to be issued with a digital certificate, you'll need to meet the requirements outlined in the course handbook. The handbook will be made available to you as soon as you begin the program.

Your certificate will be issued in your legal name and sent to you digitally upon successful completion of the course, as per the stipulated requirements.



“At MIT Sloan Executive Education, we are focused on bridging the energy, engagement, and idea flow of physical in-person teaching and learning into online experiences. We aim to positively modify individual and collective behaviors that participants will take back to their teams and propagate throughout their organizations.”

**- PAUL MCDONAGH-SMITH,
SENIOR LECTURER (IT GROUP) AND
DIGITAL CAPABILITY LEADER, MIT
SLOAN SCHOOL OF MANAGEMENT**

HOW YOU'LL LEARN

Every course is broken down into manageable, weekly modules designed to accelerate your learning process through diverse activities:

- Work through your downloadable and online instructional material
- Interact with your peers and learning facilitators through weekly class-wide forums and reviewed small group discussions
- Enjoy a wide range of interactive content, including video lectures, infographics, live polls, and more
- Investigate rich, real-world case studies
- Apply what you learn each week to assignments, culminating in a systematic approach to identifying and mitigating issues at every stage of AI deployment

TECHNICAL REQUIREMENTS

BASIC REQUIREMENTS

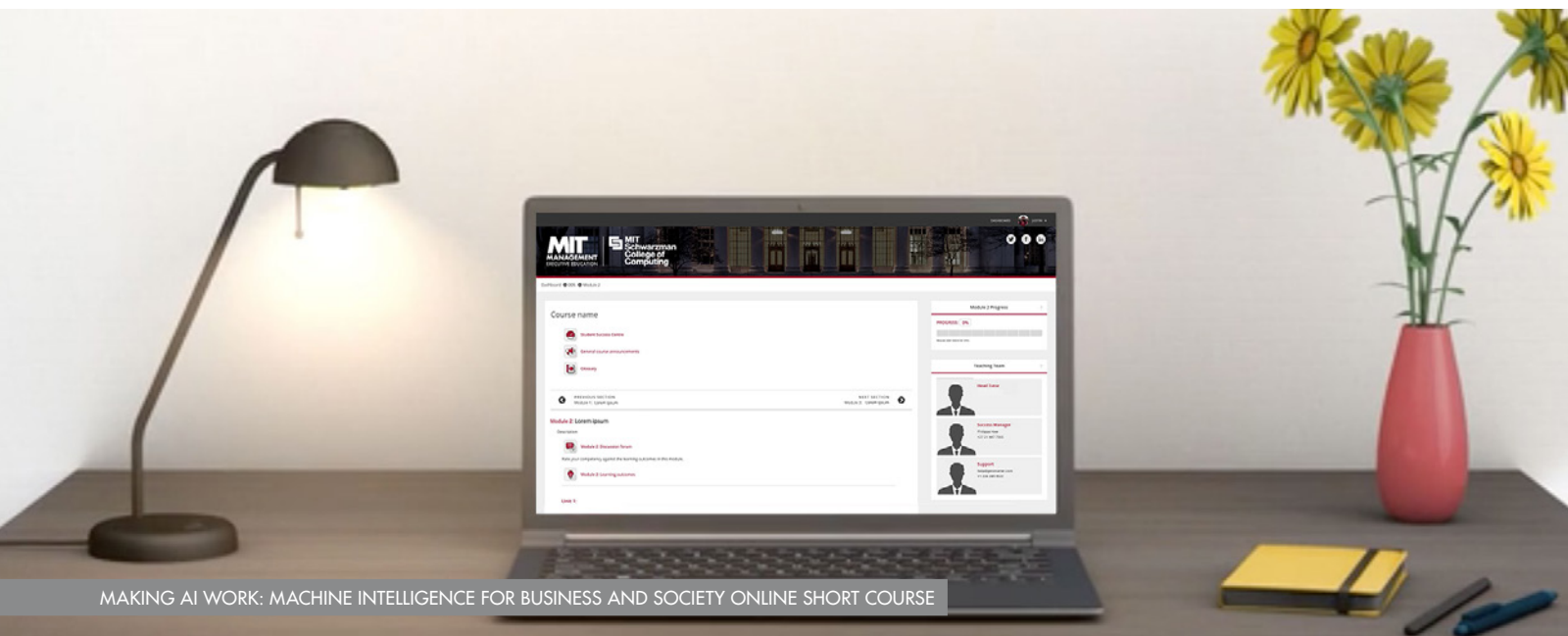
In order to complete this course, you'll need a current email account and access to a computer and the internet, as well as a [PDF Reader](#). You may need to view Microsoft PowerPoint presentations, and read and create documents in Microsoft Word or Excel.

BROWSER REQUIREMENTS

We recommend that you use Google Chrome as your internet browser when accessing the Online Campus. Although this is not a requirement, we have found that this browser performs best for ease of access to course material. This browser can be downloaded [here](#).

ADDITIONAL REQUIREMENTS

Certain courses may require additional software and resources. These additional software and resource requirements will be communicated to you upon registration and/or at the beginning of the course. Please note that Google, Vimeo, and YouTube may be used in our course delivery, and if these services are blocked in your jurisdiction, you may have difficulty in accessing course content. Please check with an Enrollment Adviser before registering for this course if you have any concerns about this affecting your experience with the Online Campus.





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REGISTER NOW

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