

# INTERIM GUIDANCE ON THE DEVELOPMENT OF EXAM QUESTIONS FOR ONLINE EXAMS ACADEMIC YEAR 2023/4 ONLY

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## CONTEXT

Online exams were introduced at the University of Reading in response to the urgent, emerging Covid19 pandemic in 2020. [Staff guidance](#) was developed to enable a move towards a situation in which students could sit exams off campus. Online examinations continue to be offered to provide a more inclusive setting which supports student wellbeing, accommodates demands on available space, and offers flexibility for students. Feedback from students has been largely positive.

Designing online exams requires the same approach to design as an open book or take-home exam, as students will have access to a wide range of learning materials during the time allowed. The rapid emergence of Generative Artificial Intelligence Tools (GAITs) is ongoing and as such the University's approach to assessment is under review; discussions will continue as to the approach to be taken in the future. As we move towards achieving the goals of the Portfolio Review Pathway, there will be fewer exams and assessments will be more authentic, thus allowing our students to graduate, ready to take on the challenges of working in the 21<sup>st</sup> century.

Much of the guidance on [writing online exams](#) produced as part of our pandemic response is also relevant in light of GAIT e.g. designing questions that do not over-rely on memory and recall; instead customising questions or redesigning the task to make the assessment more context-rich, scenario-specific or current/topical or incorporating reflective elements. This guide seeks to provide advice and strategies which can be taken to reduce the risk of GAIT misuse by students undertaking online exams. It should be noted that the guide is intended to provide an overview of the approach that can be taken to preparing online exam papers, it is not prescriptive and Schools/programmes should use it to help formulate their approach to exam setting for 2024. Examples used in this guide are for clarity only, using subject matter that most will be familiar with, even if not from an academic perspective.

NB This guide is intended to be helpful to staff during the period of time when exam paper writing for 2023/4 is taking place. It is recognised that the guidance will quickly become outdated as GAITs capabilities expand at an exponential rate. Writing an assessment which is GAIT proof is inherently difficult and thus it is recommended that assessors expect students will be using GAITs whilst completing online exams. This guidance was developed using the best available guidance at the time of writing (November 2023).

## **A Note on GAITs**

GAITs produce content quickly and efficiently based on a human operator's text inputs to the database; known as prompts. The resulting outputs vary according to the clarity and specificity of the prompts used, but sound and/or appear to have been created by a human owing to GAITs' use of natural language processing and machine learning algorithms. Examples of Generative AI include OpenAI's ChatGPT, DALL-E (and DALL-E2), and PerplexityAI. Other tools such as Google Bard and Microsoft's Bing Chat can generate content that includes real-time data from the Internet. The outputs can later be refined with further prompts to improve the quality and/or usefulness of the outputs. A wide range of guides to using GAIT are available online and staff may access [LinkedIn Learning](#) courses on GAIT such as "[How to research and write using Generative AI tools](#)" using their university account.

Detection of the use of GAITs is not possible, and as such, the University does not endorse the use of GAIT checking tools e.g. reverse GpT as they are deemed unreliable. Further details can be found on the [University's AI webpages](#).

## **Seen vs Unseen Papers**

In the first instance, decide whether you want to set students a seen or unseen paper. Unseen exams prompt students to prepare materials which cover the breadth of the syllabus within the time allocated to revision. Such papers are associated with high levels of student anxiety and are often seen as poor preparation for life beyond graduation.

Seen papers (released anything from 24 hrs to a few weeks in advance) reduce student anxiety and are therefore more inclusive by design as well as allowing greater focus on selected topics in greater detail. Students can focus their preparation time on developing a deeper knowledge of a particular topic and honing their critical thinking and evaluation skills. Seen papers should focus on the application of

knowledge and understanding to a new situation, resulting in a reduction in regurgitation of content, instead, prompting students to carry out research into areas related to but not necessarily covered by the module. Such practice results in better student scores but also higher quality independent research by the student, thus developing important skills for the future.

## PRINCIPLES FOR DESIGNING ROBUST ASSESSMENTS

Robust assessments, whether they are online exams, coursework or closed book in person exams, seek to ensure that the change students have undergone as a result of their learning can be measured. Such assessments are capable of differentiating between different levels of competence amongst the cohort, whilst ensuring assessment is fair and inclusive.

Reflect on your **learning outcomes for the module**, what is it that you want the students to be able to do to demonstrate their learning?

The approach to setting exam questions should ensure that the MLOs are fulfilled and that there is **constructive alignment** between assessment criteria, the teaching and learning undertaken in the module and the MLOs. For further guidance on constructive alignment is available from [CQSD](#).

Consider the **assessment criteria** to be used for the online exam, and ensure they are appropriate i.e. can be achieved using an online exam and student achievement can be differentiated across the cohort. See the section below on rewarding higher order thinking. This is a chance to review what the purpose of the online exam is, what judgements we are trying to reach about their learning and the development of discipline specific skills and how we can evidence this learning.

Ensure students are supported to develop their **assessment literacy**. Students should understand what types of question they might be asked, what is expected of them during the online exam e.g. should they cite academic sources? Students also need to understand what successful answers will look like, this is likely to require some supported practice in class.

## ACADEMIC INTEGRITY AND GENERATIVE ARTIFICIAL INTELLIGENCE TOOLS (GAITS)

The rapid rise of GAITS does raise questions about the academic integrity of online exam papers and thus the format of questions needs to be adapted to ensure misuse of GAITS does not occur. The University has developed an [addendum](#) to the Academic Integrity policy which states that misuse of GAITS will be considered academic misconduct.

## USING ACADEMIC SOURCES WITHIN AN ONLINE EXAM

### E-BOOK AVAILABILITY

If you are setting an open book exam that will require your entire cohort of students to access a single ebook during the course of the examination period, please contact your Academic Liaison Librarian **in advance**. The Library will need to confirm that the required ebook licence is available. Certain ebook licences restrict the number of concurrent readers, which may prevent students from accessing required material during the examination period. Your Academic Liaison Librarian will be able to advise. It is important to ensure they are contacted as soon as possible, as new purchases and/or amendments to ebook licences will take some time to facilitate.

## CITING SOURCES

Furthermore, given there is normally [an 8 hour window](#) of time for students to complete online exams, you can require them to use a cite **some** credible academic sources which they have encountered during the module. Note, that it would be unreasonable to expect students to read much in the way of new material during this timeframe, but with the use of prior reading and notes, students should be able to cite the use of some sources to support their work. Whilst GAITs can be used to help the students understand these sources, they do not perform well at more humanistic tasks such as critically evaluating sources.

Where sources are expected, students should be advised of this in the Blackboard instructions, on the rubric for the exam paper and advice you issue to them on preparing for the exam. For example “Depending on the type of question, citations may be expected (e.g. to attribute ideas or theories), but you are NOT expected to cite as extensively as you would for a piece of coursework, and you should NOT give a reference list at the end”

## ANNOTATED BIBLIOGRAPHIES

Alongside asking students to cite some academic sources to support the ideas that they are presenting, asking for a justification of the use of these sources could reduce reliance on GAITs by students. It is important to remember that for online exams they normally only have an 8 hour window of time to complete their work; thus they should not be expected to produce anything of significant length to support their answers.

## DEVELOPING QUESTIONS FOR ONLINE EXAMS

There are number of approaches which can be taken to developing online exam papers which are less vulnerable to the misuse of GAITs.

### Introducing Authenticity to exam questions

Customising questions or redesigning the task to make the assessment more context-rich, scenario-specific or current/topical makes it potentially more difficult for students to quickly look up answers online or use GAITs to create an answer. Authentic questions can be developed using either actual scenarios from your discipline, or fictitious scenarios which require students to engage with the details of the scenario, thus reducing vulnerability to AI use. Furthermore, students can be asked to analyse the scenario presented, to draw on key concepts and apply their knowledge and understanding to the situation and create solutions or make judgements.

*Example* – provide the students with some detailed information about a location which is vulnerable to flooding and ask the student to evaluate the issues, identifying the key concerns of stakeholders and provide a proposal for reducing flood risk.

Alternatively, students could be asked to apply theory to a case study that they have not covered previously. The more specific the case study/scenario is, the less likely they can use GAITs to provide their answers.

*In-tray exercises* are similar to pre-seen exams, except students are provided with an initial dossier of papers to read, prioritise and work on in advance of the exam, but do not see the actual exam questions beforehand ([CQSD, 2023](#)). The exam questions should require students to apply their knowledge and understanding to the materials, demonstrating higher order thinking skills (see section

below). New information might be provided to the students at intervals throughout the preparation period or during the online exam. This simulates real practice where unknown elements and irrelevancies are often encountered.

Guidance on designing [authentic questions](#) is available from CQSD, further resources are listed at the end of the guide. In both instances, students will need support to prepare for this type of online exam assessment as it is likely to be unfamiliar to them.

## Rewarding Higher Order Thinking

Questions need to be developed which rely on higher order thinking rather than memory recall and short explanations. Exam questions can be framed in a way which requires students to apply what they have learned in new situations, analyse scenarios, interpret data in tables or graphs, or extrapolate their knowledge in other ways. When developing questions, consider the weighting that will be given to the students' critical evaluation and analysis skills. Rewarding higher order thinking will ensure that credit is not given to the generic answers produced by GAITs. Figure 1 exemplifies the types of verb/command words that might be used to achieve different tasks. It's important to note the following rules of thumb when using these:

- Criticality matters, humanistic thinking skills need to be prioritised to avoid GAIT misuse
- Using higher order thinking and applying it to authentic, real world situations which the student has yet to encounter will reduce assessment vulnerability.
- Asking students to synthesise information from across a module will add complexity to questions.

Whilst GAITs can produce some discursive content, outputs are often generic, simplistic and at times erroneous.

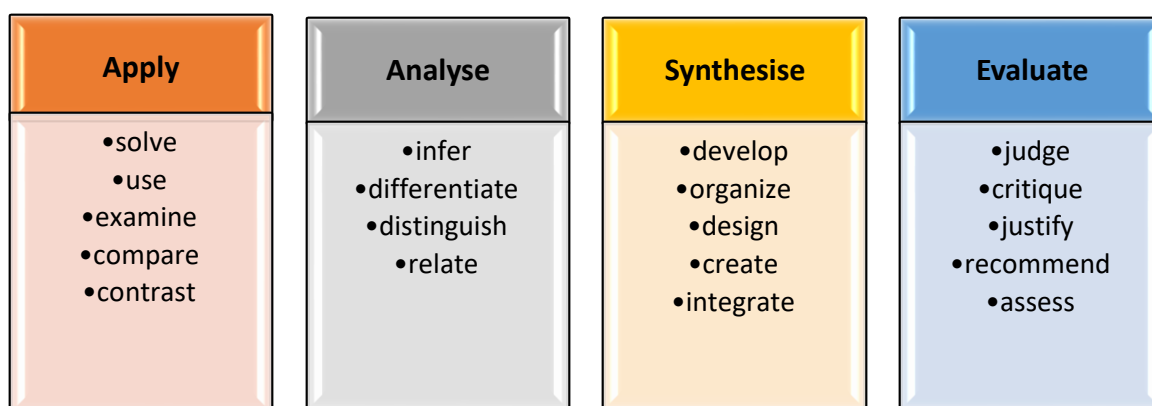


Figure 1 Verbs which can be used in questions to promote higher order thinking

## Specifying Specific Sources to use in the exam

As noted above, most GAITs have been trained on publicly available information. Sources such as journal articles which require a subscription e.g. British Medical Journal are unlikely to have been added to the GAITs databases. Students therefore can be asked to access subscription only articles to use as part of their online exam response, this can be useful in ensuring academic rigour. Questions which require students to compare and contrast arguments from papers they have not studied within

the module are even better. Such questions allow can promote the application of learning to a new situation and command some. Note that GAITs such as Bing Chat can summarise any page the student has open in their browser, thus subscription only articles can be open, but the GAIT can only work on what is present in a single window, comparing and contrasting are not possible at present. Be mindful of how much you are asking students to read and do within their allocated time window.

### Adapting the Style of Questions and the Format of the Answer(s)

The following suggestions should serve to reduce the reliability of GAITs in answering the questions:

1. Ask students to create answers which require a range of media e.g. to write some text, draw a diagram to explain ideas and concepts followed by more text which exemplifies their ability to think through the problem set
2. Ask the students to use track changes to create their exam response, this would allow the editing of work to be evidenced from the start (especially if the use of GAITs is used as a starting point – see below).
3. Multiple choice questions could be set which are not answered as a question but the student has to explain why one answer is correct and why the others are incorrect
4. For calculations/quantitative tasks, awarding marks for demonstrating how the student arrived at their answer, this could include a running commentary on the steps taken.
5. Think about the format of the answers students will provide, bullet point lists are frequently used by GAITs and it is advisable to avoid asking students to create lists.
6. Set a multiple resource question – a question which involves some stimulus which the students then have to respond to and then further develop their answer:

#### EXAMPLE



Figure 2 Possible Soft Flood Management Techniques (The Flood Hub, 2018)

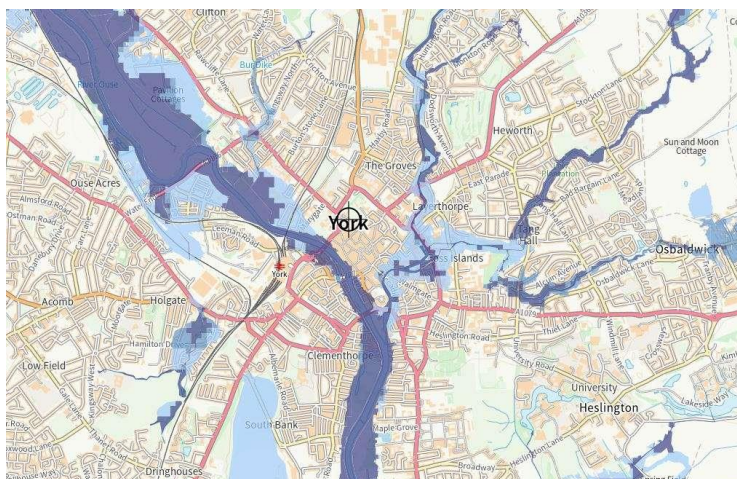


Figure 3 Flood Risk Map of Location X (Leak Detection, 2023)

Figure 2 illustrates a range of soft flood management strategies which could be applicable to the Location X (Figure 3). With reference to Figures 2 and 3, **critically evaluate** the potential of three of these strategies for Location X and **justify the use** of them to reduce flood risk to residents and local businesses. The more specific this case study is made (and the less commonly cited) the better in respect of GAIT misuse.

Questions such as this could incorporate all manner of visual materials as the stimulus, including images, diagrams, quantitative or qualitative data, word clouds, maps or artists impressions. Students will need to understand how the marks for the question will be derived, and it is advisable to make it clear, how many marks are available for responding to the stimulus, and how many are awarded for going beyond the stimulus into the wider discipline; drawing on existing knowledge and understanding. For this type of question, make it clear whether or not you expect students to cite any sources (see below).

## ACTIVELY USING GAITS IN YOUR ONLINE EXAM

Whilst the active use of GAITS is to be encouraged, it would be unusual to ask a student to use them in an exam, instead, a coursework task would be more appropriate. Nevertheless, you might decide for the 2023/4 period whilst you are phasing out a module for example, that you want to incorporate GAIT use. The following options are available:

Ask the students to use some prompts you provide them with to generate some answers to the questions set. Ask students to then critically evaluate the answers which are returned and then suggest improvements which can be made to them, with a justification for these improvements. You might ask the students to illustrate their thinking using track changes in Word to evidence that they made the changes (they should be signed in using their University username and password so that you can see that they were the author).

If you choose to use GAITS in an online exam, it is essential that students are aware of this in advance, have been given training/guidance on using GAITS and have an opportunity to do some practice. Students will want to know how this type of answer will be marked and to be guided to develop their assessment literacy prior to the exam. When setting an exam paper which encourages the use of GAITS, it is important to be mindful of paid for/ free versions of GAITS and to make sure the question can be answered just as adequately using the free version to ensure equality and accessibility for the students.

## THINGS TO AVOID

- Questions which only ask for definitions, explanations, or calculations.
- Questions which invite basic synthesis of material from published sources as these may be vulnerable to AI such as Paper Digest.
- Although GAITS such as ChatGpt 3 are trained on data up to 2021, other GAITS do have open access to the internet. Thus, advice to use recent events so as to try and avoid the misuse of GAITS is misguided e.g. Bing Chat is built into all Microsoft Edge browsers and can provide very up to date summaries of developments in current affairs.
- Data security – at the moment it is unclear what happens to any information or data submitted to GAITS, thus staff are urged to be cautious about what they submit to GAITS. Information which is confidential, personal data, material belonging to a third party or information that staff want to retain the intellectual property of and/or is sensitive, should not be submitted. Likewise if you want to create a specific scenario and use it again in the future, it is advisable not to submit it to GAITS which could then reproduce that data in the future.

## SUPPORTING YOUR STUDENTS

### Developing students' assessment literacy

Module convenors are encouraged to consider designing-in activities (if these do not already exist) to enable students to develop familiarity with the assessment formats and to clarify expectations. The suggested activities outlined below may also provide additional opportunities for student-student or student-tutor interactivity.

### SUPPORTING REVISION

Whilst students in part 2 and 3 might have some experience of taking seen exams or online unseen exams; it is likely that part 1 and postgraduate students might have no experience at all. Students will need some guidance on how to prepare for their exam and where they should put their efforts. The following could form the basis of tips you give them:

- Let students know well in advance what the paper might look like and how they will achieve marks in the exam.
- Students will assume that they should start with memorising their lecture notes, however, in a world with GAITs, this is unlikely to be an effective assessment strategy, thus they will need help understanding what it is you want them to do e.g. using higher order thinking skills. Building in opportunities to practice will be key.
- Check your students understand the limitations of GAITs and that outputs from them are unlikely to achieve high marks (ask them to ask GAITs to write the lifecycle of a unicorn to confirm it can write nonsense, secondly, ask them to experiment with writing some multiple choice questions on a topic they know well, and they will see it creates errors (even if it's about Harry Potter!)).
- Ensure they know what types of things they should refer to, to support their learning, such as journal articles and core texts.
- Ensure students know how long they will have to prepare their answers. Clarify that you **do not expect them to use the full 8 hour time window**.
- Guide them to support and advice which will develop the skills you are looking for in the exam(s) such as writing critically, developing a high quality argument, drawing conclusions based on consulting a range of specific resources you directed them to.

Advice on the practicalities of sitting an online exam is available from the [TEL website](#). Study Advice provide both [guidance](#) and an [advisory video](#) for students which you could signpost them to in addition to the **bespoke advice that you give them**. If your students are struggling to deal with the stress of exams, the [Academic Tutor Toolkit](#) has resources you can use to signpost them to help, as does the [guidance for staff on supporting students](#), you could direct them to the [University wellbeing service](#) pages and/or the new external [University online support service](#) (available 24/7).

### INTERPRETING ASSIGNMENT BRIEFS/ EXEMPLAR EXAM QUESTIONS

You can provide students with opportunities to interpret the assignment brief/exemplar exam questions in pairs and/or small groups and encourage them to ask questions and seek clarifications. Using synchronous tools for the groupwork and asynchronous tools such as



discussion boards to field the questions and provide answers is an effective combination of approaches that results in co-created FAQs that all can share.

Formative practice at doing an online exam paper within an 8 hour window would also be beneficial for students who have never taken this type of paper before. Rather than marking all the individual scripts, the work could form the basis of a discursive seminar, in which students share their efforts, use the marking criteria to analyse their performance and receive generic feedback on the whole group's effort from yourself.

## **ENGAGING WITH EXEMPLARS AND ASSESSMENT CRITERIA**

You can provide opportunities for students to work in pairs and/or groups to assess and comment on exemplar answers/assignments using the same assessment criteria that will be used to assess them. Activities of this kind have been shown to develop students' understanding and internalisation of assessment criteria, which can then be applied to their own work.

### **Academic integrity support for students**





Ensure your students are clear on whether or not they are expected to source academic materials as part of their online exam. Furthermore, it will be necessary to select one of the following options to indicate to students whether or not they are permitted to use GAITs:


- Category 1: GAITs cannot be used for this assessment;
- Category 2 GAITs can be used by students to support their learning and development when completing this assessment;
- Category 3: the use of GAITs is expected for this assessment.

Remind students that of the University's [Academic Integrity policy](#) (and [addendum on GAITs](#)) and ensure they are clear on what is expected of them and the consequences of failing to comply.

Guidance for students on the use of GAITs can be found on [Essentials](#) and a bespoke [LibGuide](#) has been created.

## KEY CONSIDERATIONS

<p><b>Learning outcomes</b></p> 	<ul style="list-style-type: none"> <li>• Start with the learning outcomes your exam is designed to test. The online exam (and assessment criteria) should align with these outcomes.</li> <li>• Consider which (if any) of your module learning outcomes have already been assessed to avoid over-assessment.</li> </ul>
<p><b>Orientation of task</b></p> 	<ul style="list-style-type: none"> <li>• Use this opportunity to re-frame assessment tasks to reflect the open book and GAIT environment. This is an opportunity to ‘design-in’ academic integrity by creating questions/tasks which rely less on information recall and more on application and synthesis of knowledge.</li> <li>• Ensure students are given appropriate support to enable them to succeed. This is particularly important if you are introducing an unfamiliar task.</li> </ul> <p>If you choose to incorporate GAITs into the task, ensure students are clear on how to use the tools and if there are any preferred tools they should use. It is worth noting that some tools have a limit on how many times they can be used within a 24 hour period e.g. Bing Chat.</p>
<p><b>Inclusivity &amp; accessibility</b></p> 	<ul style="list-style-type: none"> <li>• Take proactive and anticipatory account of the diverse needs of your students and the different circumstances they find themselves in. Ensure you are aware of any specific adjustments individuals may need to succeed (download their ILP when writing the exam paper). For example, if your assessment relies on texts that have no e-book versions consider how you will ensure students who cannot visit the library are not disadvantaged.</li> <li>• Use the online exam paper specifications provided alongside tools, such as Blackboard Ally and the Microsoft Accessibility Checker, to ensure papers and assignment briefs are accessible for students who rely on assistive technologies.</li> <li>• If you are going to create images or figures for students to use as a stimulus for starting an answer, ensure that a screen reader can interpret it; otherwise you will need to adapt the paper for visually impaired students.</li> </ul>
<p><b>Workload &amp; assessment equivalence</b></p> 	<ul style="list-style-type: none"> <li>• Provide clear guidance for students about how much time they should spend preparing for (e.g. planning their approach, conducting research, revising etc.) and undertaking the exam, along with an indicative word count.</li> <li>• Take account of equivalence of effort on the part of the student. It is suggested that you estimate equivalence based on notional learning hours and estimated student effort. <a href="#">CQSD guidance</a> on this for coursework can be considered for online exams too.</li> </ul>

<p><b>Assessment criteria</b></p> 	<ul style="list-style-type: none"> <li>• Ensure assessment criteria/rubrics reflect the ‘open book’ assessment conditions and orientation of the task. For example, criteria that reward the ability to recall information could be weighted less heavily than those that reward students’ ability to use information.</li> <li>• Ensure assessment criteria are based on what you expect to be achievable given the assessment format. For example, what degree of depth do you expect given the time available?</li> <li>• If you are advocating the use of GAITs in the online exam, consider how you will evaluate students’ efforts to critique the outputs, suggest improvements etc.</li> </ul>
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## RECOMMENDED WEBSITES

CQSD: Artificial Intelligence and Assessment and Feedback resources

Jones, R. (2023) Learning with Generative AI: Collaboration and Criticality [webinar slides online] [https://uorlearn.sabacloud.com/Saba/Web\\_spf/EU2PRD0149/app/catalog/search?selectedTab=L EARNINGEVENT&searchText=ArtificialIntelligence%20&filter=%7B%7D](https://uorlearn.sabacloud.com/Saba/Web_spf/EU2PRD0149/app/catalog/search?selectedTab=L EARNINGEVENT&searchText=ArtificialIntelligence%20&filter=%7B%7D) slides at: <https://www.reading.ac.uk/cqsd/-/media/project/functions/cqsd/documents/qap/learning-with-gen-ai-rj.pdf?la=en&hash=8B2D943C8D56B47CE20C04D309B4BDF7>

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University of Reading Library [Academic Liaison list](#) and [Ebook guidance](#) for students

University of Amsterdam [How to make your assessment more AI proof](#)

University of Cork [Assessment in the Age of AI](#)

UCL: [AI Hub](#) and [open book exam writing advice](#).

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