

# **Implementation of large-scale online mathematics examinations:**

**successes, challenges and thoughts for the future**

**Martyn Parker and Lynne Bailey, University of Warwick**

# Outline

Operating context

Assessment design

Implementation

Successes, challenges and thoughts for the future

# Caveat

- Cannot cover every point around the process.
- Won't look at dead ends.

# Outline

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# Operating context

Over 2000 mathematical sciences students

Mathematics	MORSE	Maths + Stats/Physics...	Data Science	Discrete Mathematics
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## Typical assessment

10% coursework	90% examination
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## University year

Term 1 (Oct - Dec)	Term 2 (Jan - Mar)	Term 3 (Apr - Jun)
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# Operating context

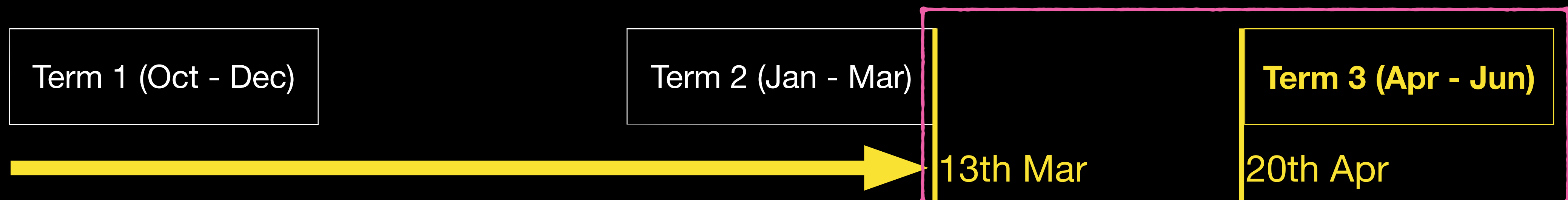
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## University year



# Operating context

13th March

- All assessments and exams will be online with immediate effect.
- No first year examinations
- All planned centrally timetabled written examinations replaced by online assessment.

Assignments
Open book assessment
Files-based open book assessment
Multiple Choice Questions
Spoken exam under timed conditions

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# Assessment design

## Constraints

Time	Five weeks until first sitting.
Academic rigour	Need to maintain external and internal quality assurance processes. Exams already written, moderated and approved by externals.
Accrediting bodies	One body provides exemption from professional examinations.
Technology	GDPR; information security
Students	Located all over the world; range of different environments; study/assessment expectations.

# Assessment design

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# Assessment design

“If I had to reduce all of educational psychology to just one principle, I would say this: the most important single factor influencing learning is what the learner already knows.”

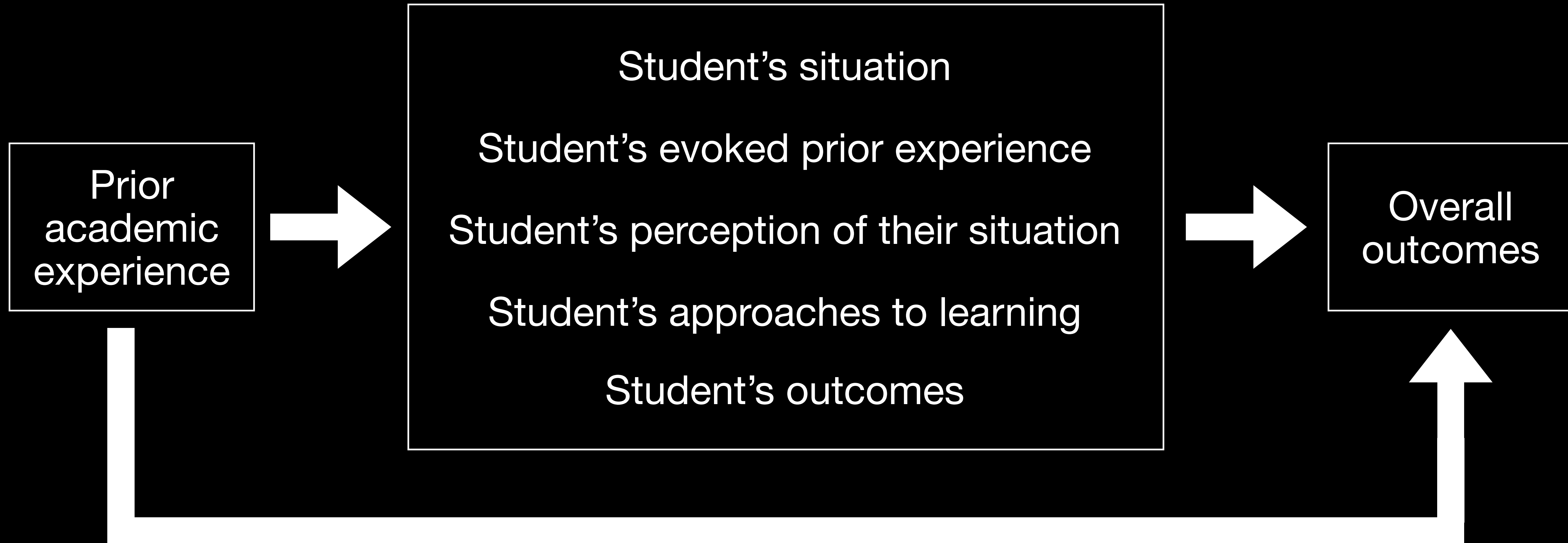


# Assessment design

## Evoked prior experiences

Evoked conception of learning	How the student conceive of learning in the specific context of their study
Evoked motivation	Those motivational aspects evoked by the context
Evoked self-efficacy	Confidence students have in their ability to succeed in a specific situation

# Assessment design



# Assessment design

Student's situation

Student's evoked prior experience

Student's perception of their situation

Student's approaches to learning

Student's outcomes

On-campus

Social contact

Expecting and preparing for

closed book time-constrained

written exams with known rubric

# Assessment design

Create a process that replicated the students' prior experiences and their current approach.

Files-based open book exams
Minor updates to current papers: de-emphasise the importance of “bookwork”
Use tested technology
Work with the students on their assessment experience
Develop literacy around any changes

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Aims

Exams  
start

# Implementation

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Aims

Feedback

Exams  
start



# Implementation

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Aims

Practice  
deadline

Feedback

Exams  
start

# Implementation

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Aims

Practice

Practice  
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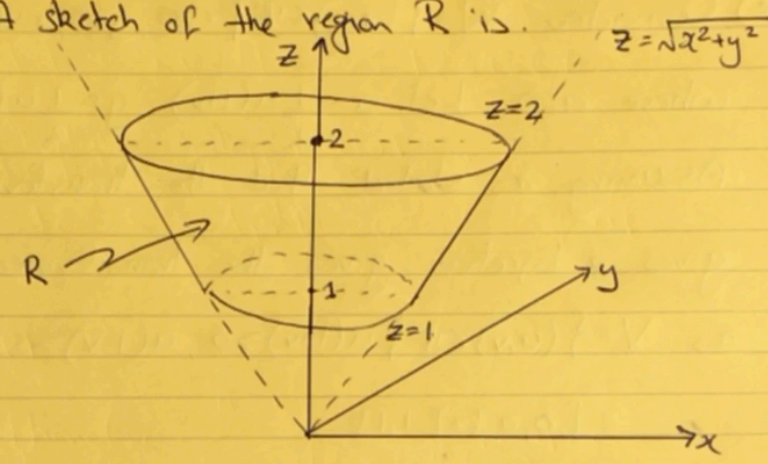
# Implementation

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6	7	8	9 Practice	10	11	12
13	14	15 Practice deadline	16	17 Feedback	18	19
20 Exams start	21	22	23	24	25	26
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# Implementation

← ⚡

bi) A sketch of the region  $R$  is.



ii) Using 3-d cylindrical coordinates we have  
 $R = \{(r, \theta, z) \mid z \in [1, 2], 0 \leq r \leq z, 0 \leq \theta < 2\pi\}.$

iii) Computing

$$I = \int_{\theta=0}^{2\pi} \int_{z=1}^2 \int_{r=0}^z z e^{-r^2} r \, dr \, dz \, d\theta = 2\pi \int_{z=1}^2 \left[ -\frac{1}{2} z e^{-r^2} \right]_0^z dz$$
$$= \pi \int_{z=1}^2 z (1 - e^{-z^2}) \, dz$$
$$= \pi \left[ \frac{z^2}{2} + \frac{1}{2} e^{-z^2} \right]_1^2$$
$$= \frac{\pi}{2} (3 + e^{-4} - e^{-1}).$$

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DOCUMENT WHITEBOARD BUSI

Office Lens

OneDrive

Genius Scan

Adobe Scan

# Implementation

Mon	Tue	Wed	Thu	Fri	Sat	Sun
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<div>Aims</div> 16	<div>Technology</div> 17	<div>Recruited</div> 18	19	<div>Initial feedback</div> 20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5
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# Implementation

Practice exam

Draft instructions

Complete the paper

Submit the paper

Feedback

# Implementation

	Office Lens / OneDrive	Genius Scan	Adobe Scan
Paid version	No	Yes	No
Ease of set up including log in	<p>LB: Some difficulty with personal account / <u>UoW</u> account. <u>Didn't</u> really matter though as could export file from personal account without issues.</p> <p>Already had OneDrive on computer and synced file</p> <p>JT: Can be difficult with clashing of personal <u>microsoft</u> account vs <u>uni</u> account. However, easy login due to account likely to already be signed in. Fluid connection to <u>onedrive</u> and other file types.</p> <p>AM: Easy to set up, and was automatically logged into my <u>UoW</u> account, <u>likely because</u> I was already signed into the outlook account on my phone.</p> <p>AK: Easy to set up and log in to <u>UoW</u> account.</p> <p>TH: I wasn't already logged into to my <u>UoW</u> account on my phone and it took me some time to realise that I should be using the <a href="mailto:u1234567@live.warwick.ac.uk">u1234567@live.warwick.ac.uk</a> address rather than <a href="mailto:my.name@warwick.ac.uk">my.name@warwick.ac.uk</a>. <u>It's</u> also a bit frustrating (and potentially could cause trouble) that I must sign out of my personal account. Already had OneDrive on my PC so not an issue. Beware: a few stats students only use Linux where there is no desktop client for OneDrive though the online one works fine. Instructions for Android are</p>	<p>JT: No login required.</p> <p>AM: Only set up required was downloading the app from the app store.</p> <p>AK: No login required, easy to set up.</p> <p>TH: <u>Literally just</u> opened the app and started</p> <p>DA: Once downloaded, extremely straightforward.</p> <p>JA: Ready to use once <u>it's</u> installed on my iPad.</p>	<p>LB: Accidentally created personal account before realising that I could use <u>UoW</u> account. Would be OK with instructions but not ideal.</p> <p>JT: Auto signed into my personal account without giving me an option to choose an account first.</p> <p>AM: Would not let me sign it to my <u>UoW</u> account saying access was denied so I had to sign in with my google account instead.</p> <p>AK: it automatically signed in with my Google account. When I tried to sign out and sign in again using <u>UoW</u> account, ITS made me set up 2 factor <u>authentication</u> even though I already have this set up. After doing that successfully it said access denied. I finally logged in with my Google account to continue.</p> <p>TH: Same as everyone else.</p> <p>DA: Forgot to use <u>UoW</u> credentials, so used my Google account instead. Apart from that, easy and straightforward.</p> <p>JA: Had to select which account I wanted to use. Seemed compatible with each one and it was ready to use once I signed in.</p>



# Implementation

Ease of Use	<p>JT: UI looks like a regular camera app so intuitive. Clear red box showing what will get scanned.</p> <p>AM: Easy to use, with a box outlining the area that will be scanned.</p> <p>AK: Easy to use but sometimes the box <u>doesn't</u> recognise the page boundaries correctly. Then you need to manually adjust the box using the crop tool, this step <u>wasn't</u> immediately obvious to me.</p> <p>TH: Easy to use if you <u>don't</u> make a mistake. For example, I forgot to add the questions I completed to the cover page. I <u>couldn't</u> find a way to rescan the first page without starting over and rescanning every page.</p> <p>DA: Easy to use, area to be scanned is clearly displayed, but occasionally needs to be corrected.</p> <p>JA: Okay to use but <u>it's</u> important to know how to scan everything into a PDF. If you <u>don't</u> select "add new" it'll save each scan as a separate file. Also, if you make a mistake with a scan <u>doesn't</u> give you the option to rescan just that scan without redoing all the scans. Sometimes the scans <u>don't</u> capture the whole sheet as well.</p>	<p>JT: Nice simple UI and big orange box that shows what will scan.</p> <p>AM: Occasionally the app would scan outside the orange box provided but it is easy to adjust after scanning all pages.</p> <p>AK: Similar issue with the box needing adjustment sometimes. It initially colour corrected the photos to black and white, this made some text look unclear and overexposed.</p> <p>TH: <u>Couldn't</u> be easy. Adjusting scan cropping was intuitive and interface was clean.</p> <p>DA: An absolute pain. The automatic document detection failed <u>constantly, and</u> had to be adjusted manually almost every time.</p> <p>JA: <u>Very easy</u> to use. There may be issues if there are other sheets below the one being scanned.</p>	<p>JT: Having only used Microsoft scanning before it was less intuitive for me to have to tap the screen and wait for the app to find the page. Adding a page allows you to choose to use camera or add from gallery so slows down overall scanning as it is an extra button to press if you are just using your camera all the time</p> <p>AM: After pressing add a page for the first time, I was given the option to crop my documents at the end, which meant the app was constantly detecting and taking photos of my documents without me needing to click a button. (Maybe differs by different devices?)</p> <p>AK: <u>Reasonably easy</u> to use but takes longer because the page detection is slower than other apps.</p> <p>DA: I found this easy and straightforward to use. This was helped by the fact that document detection worked correctly every single time.</p> <p>JA: <u>Very easy</u> to use. There may be issues if there are other sheets below the one being scanned.</p>
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# Implementation

Time taken to scan	JT: Nearly instant	JT: nearly instant	JT: Noticeable <u>possibly 1</u> second?
	<p>AK: A couple of minutes in total – each page takes a few seconds for the box to recognise the page correctly. Cannot add pages later to the same document.</p> <p>TH: After 20mins trying to scan my sheets I gave up. <u>Nearly instant</u> if you are willing to scan only the main body of the page. Otherwise, maddening. Margin (where I put question numbers) struggles to be registered and occasionally the app latches on to the bottom of my desk and scans much more than the image. This can be adjusted after but <u>it's</u> a bit fiddly to do.</p> <p>DA: Quick, as long as you don't need to make many adjustments – adjustments can take <u>sometime</u>.</p> <p>JA: Took me a while because I <u>wasn't</u> sure if it was going into a PDF or not. But, once I found out, it was straight forward.</p>	<p>AK: nearly instant. Scan is automatically taken if you hold the phone still, or manually when you click the camera button. It is possible to add and reorder pages later, <u>eg</u> if certain pages were too blurry.</p> <p>TH: nearly instant</p> <p>JA: Barely any time taken</p>	<p>AM: Adobe is slower than the other two as it identifies the document and scans it in one go.</p> <p>AK: scanning is slower because page detection takes <u>longer</u> and it doesn't allow you to manually take the photo so you have to wait till it detects the page.</p> <p>DA: Scanning is slower, but this more than made up for by the time I saved in not having to correct the boundaries. This made a massive difference, and actually made this my favourite of the three apps.</p> <p>JA: <u>Didn't</u> take too long but I had to move my iPad around to get a decent orientation</p>



# Implementation

Quality of scan	<p>JT: Varies by camera but with current phone cameras not a problem</p> <p>AM: Scan quality is <u>probably the</u> best of the three.</p> <p>AK: Some pages are <u>blurry</u> and it doesn't try to correct lighting and contrast too much.</p> <p>TH: Scanning quality is abysmal. I have a top-spec flagship phone and yet the scan is barely readable, and contrast is poor.</p> <p>DA: The scan is just a cropped picture of the document – and so quality of scan will depend</p>	<p>JT: Bleached pages like Adobe but also arguably worse</p> <p>AM: Scan quality is significantly worse than the other two</p> <p>AK: Scan is decent <u>quality</u> but default colour correction can wash out certain parts, turning this off manually for each page is fiddly.</p> <p>TH: <u>Great quality</u>. By default the app tries to colour correct and enhance the image. This is <u>probably best</u> turned off as it lets pen from the back of the page bleed through. Still easily readable.</p>	<p>JT: Converts the page so although my paper looks cream with lines due to my lighting, the app bleaches <u>it</u> which actual makes the presentation difficult. Also tested with a lamp to see if that would change but still bleached.</p> <p>AM: Same as above, the paper does look like <u>it's</u> been bleached.</p> <p>AK: Automatic colour correction which makes some parts unclear. Colour correction <u>doesn't</u> happen for all pages - two pages of my scan were photos and the rest were black and white. Automatic cropping is good.</p> <p>DA: <u>Good quality</u>, clear.</p>
	on things like lighting, <u>phone</u> and other factors.	DA: Nothing particularly noteworthy – <u>it's</u> ok.	
	JA: Quality of Scans was good. But there was always one scan that was a bit blurry and having to rescan everything was a little tedious, so I ceded eventually.	JA: Quality scans! I wrote some parts in pencil and some parts in <u>pen</u> but everything was clearly visible unlike the Adobe version.	JA: Good scans. Some parts were a little less visible than others.

# Implementation

Ease of export to PDF	<p>JT: Clearly an option labelled “PDF” that auto saves to OneDrive as well</p> <p>AM: Easy to save</p> <p>AK: Easy to rename and save to OneDrive within the app.</p> <p>TH: Took me two attempts. The first I selected only OneDrive which saved multiple JPGs. I then used the PDF option which sends a PDF to OneDrive even without the OneDrive option selected. A bit confusing but got there in the end. This point would need to be made <u>very clear</u> as once you’ve uploaded you can’t go back to the scanned files and so I had to restart scanning all sheets.</p> <p>DA: Easy to save and export.</p> <p>JA: Initially it saved everything as pictures but once I figured out how to have it as several files for a PDF, everything went smoothly.</p>	<p>JT: Click the tick to “save” the document. I use “save” loosely as you have to click share afterwards to do anything.</p> <p>AM: Not sure how it actually exports the document to PDF</p> <p>AK: Easy to export to device memory and upload to Moodle directly, or send to <u>UoW</u> email. OneDrive option is for the paid version of the app.</p> <p>TH: Easy to email to your Warwick email address at which point you can download and upload to Moodle.</p> <p>DA: Easy to export to PDF, and can be shared via email, which can then be uploaded to Moodle.</p> <p>JA: Easy to export to personal files drive. <u>Couldn’t</u> find the OneDrive option.</p>	<p>JT: Big save pdf option (<u>possibly only</u> option).</p> <p>AK: Saving as PDF is easy but took a couple of minutes as the app tries to do things like text recognition.</p> <p>DA: As above.</p> <p>JA: Easy to export to personal files drive. <u>Couldn’t</u> find the OneDrive option.</p>
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# Implementation

Ease of file retrieval and upload to VLE	<p>JT: Easily retrieve file from OneDrive on your phone/pc and upload to VLE.</p> <p>AM: As file is automatically saved to one drive, it is easy to retrieve and save to <u>moodle</u>.</p>	<p>JT: to be able to save PDF directly to drive you have to pay. You can email it to yourself which is something. Your only save options are to memory, <u>email</u> or Fax.</p> <p>AM: I had to save it to my iCloud drive from which I could access it on my laptop to then rename and upload onto <u>moodle</u>.</p>	<p>JT: Saves to Adobe document cloud? You can click “share” and then find OneDrive but then would <u>probably be</u> easier to just download it from the app and upload on phone or email it to yourself</p> <p>AM: I had to click “share” and manually upload the file to one drive.</p>
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	<p>AK: Easy to retrieve via OneDrive browser. The file name <u>doesn't</u> remain the same when I download the pdf to my phone from the app, which would create another renaming step if I wanted to upload the pdf directly from my phone without going through OneDrive in the browser.</p> <p>TH: No troubles here since file <u>synced</u> to my desktop.</p> <p>DA: <u>Didn't</u> have OneDrive on my desktop, so I had to download it from OneDrive through the browser, and re-upload it.</p> <p>JA: I couldn't get the <u>oneDrive</u> to come up for the <u>upload</u> so I moved everything to my own files drive and uploaded from there.</p>	<p>AK: Quite easy to retrieve and upload the PDF through my phone files folder.</p> <p>TH: I have my Warwick email on my <u>computer</u> so it was easy to move it from there to Moodle.</p> <p>DA: Can be shared via email. Alternatively, if your computer supports it, it lets you use <u>AirDrop</u>, which is <u>substantially faster</u>.</p> <p>JA: Easy to upload from files drive.</p>	<p>AK: Easy to email to myself and then upload to <u>moodle</u>. I <u>couldn't</u> figure out how to save it to local files folder on my phone – there is a ‘copy to device’ option but I couldn't find the saved file.</p> <p>DA: Saved to Adobe Cloud, but there is a share option, that supports a variety of options (including <u>AirDrop</u>, as mentioned for Genius Scan).</p> <p>JA: Easy to upload from files drive.</p>
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# Implementation

<p>Description of steps taken from installation to file upload.</p>	<p>JT: Search <u>OfficeLens</u> on app store. Sign into your <u>UoW</u> account. Instantly opens the camera UI so can start scanning instantly and add more pages. Click on the bubble next to the camera button to show your scans. Click done to see what options you have to save your scan and choose PDF which will save to your OneDrive. Go on OneDrive to retrieve the file and upload to VLE.</p> <p>AK: Click on the <u>OfficeLens</u> link and install, log into <u>UoW</u> account, scan all pages of document. Rename the file, select where to save (PDF and OneDrive). Open OneDrive in laptop browser, find and download the pdf from the <u>OfficeLens</u> folder, upload it to <u>moodle</u>.</p> <p>TH: Visited link to <u>OfficeLens</u> on my computer and remotely installed it to my phone. Begin</p>	<p>JT: Download from app store. No login required so can scan straight away. Adding pages is easy as you just take another picture. Saved to email and sent to myself to retrieve the file and upload to VLE.</p> <p>AK: Install app from Google play store, scan all pages of the document, add/rearrange pages, rename and save the scan. Save to local folder and then upload to <u>moodle</u>.</p> <p>TH: Downloaded from app store. Opened up and started scanning. Edited cropping for each scanned image. Sent as PDF to my Warwick email. Downloaded and uploaded to Moodle.</p> <p>DA: Downloaded, scanned document. Sent to laptop via <u>AirDrop</u> and uploaded to Moodle.</p>	<p>JT: Search Adobe Scan on app store. Account <u>doesn't</u> matter really for this app so if you accidentally auto sign into your personal that's fine. If not, then sign in using your <u>UoW</u> details. To scan a page, you have to tap the screen and wait. Add page is the far-left button on the toolbar. Click "Save PDF" after you finish to save it to document cloud. Click the three dots and then share to add to OneDrive or whichever method you find easier to get the file to VLE.</p> <p>AK: Install from Google play store, sign in with google account. Scan all pages and rearrange, rename the <u>file</u> and save as pdf. Email the pdf to myself, download and upload to Moodle.</p> <p>DA: Search Adobe Scan in the App Store, download and log-in. Press camera icon in</p>
	<p>scanning document. Export to OneDrive. Sign in using <u>UoW</u> credentials. Realise this only saves JPGs. Attempt to rescan paper. Give up after fussing with the app for some time.</p> <p>DA: Downloaded the OneDrive app to my phone and logged in using my <u>UoW</u> account</p>	<p>JA: Install from the app store. Scan, upload to personal files drive and upload to <u>moodle</u>.</p>	<p>bottom right hand corner to start scanning. Shared to <u>laptop</u>, and uploaded to Moodle.</p> <p>JA: Install from the app store and select which account I wanted to use. Scan, upload to personal files drive and upload to <u>moodle</u>.</p>



# Implementation

Issues or other things to note	<p><u>10 page</u> max in Android version.</p> <p>JT: limit only on OneDrive android app and not <u>OfficeLens</u> app</p> <p>AK: If downloading the pdf and uploading to <u>moodle</u> through your phone's folder, you need to rename the pdf again.</p> <p>DA: Resulting scan had a massive file size (~30MB), which could present issues for students with poor internet connections/upload speeds. This did indeed present an issue for me, as there were multiple times where it <u>wasn't</u> clear whether the file had been successfully uploaded or not, which meant I had to try multiple times to submit the file.</p> <p>JA: <u>It's</u> not specific enough to what we want it to do. The other 2 apps get straight to the</p>	<p>Only premium can connect directly with OneDrive so had to email PDF to by university (therefore requires an email client to be installed on the phone)</p> <p>AK: Ability to add pages and rearrange them after scanning is really good compared to <u>OfficeLens</u>. However the default colour correction might cause legibility issues, I was not sure whether I should manually change it for each page or if <u>there's</u> a setting to turn it off. Overall this one was my favourite.</p>	<p>AK: This was <u>probably my</u> least favourite due to the sign in issue at the start, erratic colour correction of pages, longer time taken to scan each page.</p>
	point, but the Office Lens app has too many extra options. For example, it saves as pictures as well and the distinction between PDF and picture <u>wasn't</u> clear when I initially started using the app.		

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# Implementation

## Mathematical Sciences Online Assessment Guide



### 1. Overview

Most of the online assessments in Mathematics and Statistics will be files based open book examinations that can be sat at a time of your choice during a 24 hour window. You might see the terms "alternative examination" or "alternative assessment" used instead of "online assessment" - these are equivalent terms and refer the replacement for the term 3 examinations.

Some Statistics modules will have a fixed time when you must sit the examination due to exemption requirements from the Institute and Faculty of Actuaries. The confirmed modules are ST219, ST335, ST338, ST339, ST345, ST401 and ST402.

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◀ Assistance Request or Feedback  
(online assessment practice only)

Jump to...



EG101 Assessment Information  
(Mathematics Template) ▶

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# Implementation

## Mathematical Sciences Online Assessment Guide



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# Implementation



- 24-hour window\*
- Assessments were timed (e.g. 2 hours + extra time if applicable)
- 45 minutes to prepare submission.
- Random sample selected for post exam: “Sampling Conversations”

\* there are some exceptions to this



# Implementation

## Mathematical Sciences Online Assessment Guide



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Mon	Tue	Wed	Thu	Fri	Sat	Sun
9	10	11	12	13	14	15
<div>Aims</div> 16	<div>Tech. Demo</div> 17	<div>Recruited</div> 18	19	<div>Initial feedback</div> 20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5
6	7	8	<div>Practice</div> 9	10	11	12
13	14	<div>Practice deadline</div> 15	16	<div>Feedback</div> 17	18	19
<div>Exams start</div> 20	21	22	23	24	25	26
27	28	29	30			



# Implementation

## Mathematical Sciences Online Assessment Practice



**ⓘ If you have assessments in the April, May or June timetables, please go to the Alternative Exams Portal to access your upcoming assessments - <https://altexams.warwick.ac.uk>**

[Dashboard](#) / [My Moodle](#) / [MSOAP \(19/20\)](#)

## Mathematical Sciences Online Assessment Practice

Your progress

This area gives you the opportunity to try out and experience the submission system that you will be using for online assessments in Mathematics and Statistics modules. The following steps will be common to all online assessments for Mathematics and Statistics modules.

1. The online assessments will be linked from the Alternative Exams Portal and will be delivered via the Moodle page for your module.
2. The questions will be available as a downloadable PDF or on screen with a timer showing the duration for your online assessment.
3. You will write a coversheet\*.
4. You will write your answers\*.
5. You will scan or save your work to **single PDF** file\*.
6. You will upload your work to Moodle.
7. You will have 45 minutes to scan and upload your work.

\*You may use any appropriate method to produce a single PDF document with clearly legible answers such as writing on a tablet or using TeX. We expect that writing on paper and scanning using a mobile phone will be the most common approach. You may find more relaxed rules on file submissions for assessments delivered by other departments. We have done extensive testing and, for the style of answers produced in these assessments, we would not be able to accurately and reliably mark your work within the time scales without imposing this restriction.

The following may vary between assessments and delivering departments;

1. The number of questions that you need to answer
2. The number of questions that will be marked (it may be the only the first x, or it may be all questions with the highest marks used for the grade)
3. The contact method for some types of issues.
4. Additional measures for academic integrity
5. Fixed start and finish times for assessments leading to exemptions.

[Information about Mathematics Examinations](#)

[Information about Statistics Examinations](#)

The set up that you will see below may have minor refinements made before the first real online assessments (based on your feedback and additional information becoming known) but the key steps for you to carry out the online assessment and submit your work will be the same. The instructions / information are repeated in this practice area - once in the information to enable your practice and once in the area where you would expect to see the information in a real online assessment.

Please **read the guide** below and then carry out a practice of the entire process with EG101 module below.

**IMPORTANT:** If you have an April examination you are **required to submit by 15th April** and will receive feedback by **17th April**.  
If you have technical issues during an alternative assessment and have not submitted a practice, then you **may NOT be eligible for mitigating circumstances**.



# Implementation

## Assistance Request or Feedback (online assessment practice only)

This assistance request form is only available for the Mathematical Science Online Assessment Practice. For a real online assessment additional contact details and the Alternative Assessment Portal will be used to provide support and assistance.

This guidance has been checked as thoroughly including by student volunteers. However it has been developed very rapidly and if there is anything that is unclear or you would like further information on, please also use this form to report any suggestions.

Due to the bank holidays on Friday and Monday there may be some delays in responding to your assistance request. Thank you for your patience.

Responses will be sent by email.

## Mathematical Sciences Online Assessment Guide

**READ THIS** information and guidance for carrying out term 3 assessments in Mathematical Sciences.

## EG101 Online Assessment

An example of the display of an examination paper (MA137 from 2018–19) is shown in the online assessment.

However for this practice online assessment, we suggest that you **find some work that you have already completed** that is similar to your examination submission e.g. a mock paper, assignment or exercise questions, written on A4 paper in blue or black ink. You should try to use at least 11 pages of handwritten work (some apps have a 10 page limit so you want to know about this in advance if this limit will affect you).

You should include a cover sheet giving EG101 as the module code and pretend that you have answered any 3 question numbers that you like.

You should be able to view the questions in screen or download the paper. We would recommend viewing on screen so that you are aware of the time remaining to you.

Everything below this statement is simulating the set up that you will see for a real online assessment EXCEPT that the **submission window is longer for the practice** than it would be for a real online assessment AND you should not report any issues via AEP.

Before starting the online assessment;

- Make sure that you have a sufficient supply of paper (preferably A4, lined with a margin) and working pens (preferably blue or black ink). If you use a pencil ensure that it is not too faint to be captured by a scan.
- Prepare a cover sheet for the online assessment by writing your ID number, module code and the date on a sheet of blank paper.
- Ensure that you have a device with a charger or sufficient battery life to last the duration of the assessment, that is capable of taking photographs.
- Make sure you are confident using your available devices to scan your written work to PDF. Guidance on using a mobile phone or computer with a webcam to scan written work to PDF can be found [here](#).
- Read the assessment information sheet below.
- You **MUST** go to the [Alternative Examinations Portal \(AEP\)](#) (not required for practice but is required for a real assessment) to agree the academic integrity statement and state whether you are entitled to additional time for reasonable adjustment.

## EG101 Assessment Information (Mathematics Template)

## EG101 Assessment Information (Statistics Template)

## EG101 Online Assessment

The questions will display on-screen for the duration of this "quiz", which is set to the time of the online assessment **NOT** including the 45 minutes of additional scanning and upload time.

You will be able to use the additional 45 minutes after the quiz ends for preparing and uploading your file to a separate area, the link for which will be shown when you "submit" the quiz.

## EG101 Submission (for first deadline of 15th April)



# Implementation

## Example Scanning

 [Example completed PDF scan](#)


If you did not upload a PDF scan that compiled with all the stated instructions, then you may find the attached PDF file useful; it demonstrates the requirements.

This scan was prepared using one of the recommended scanning applications: OneDrive. Total scanning time from start to upload to OneDrive was less than 3 minutes.

Please see the Moodle [Mathematical Sciences Online Assessment Guide](#) for full guidance and support instructions.

The video below (run-time just over 2 minutes) demonstrates the real-time scanning process for the attached PDF file. This video starts from app opening and finishes when the file is uploaded from the mobile device, it does not cover subsequent submission to Moodle. Again, see the Moodle [Mathematical Sciences Online Assessment Guide](#) for full guidance and support instructions.














 [Example PDF scan with comments](#)

Example PDF scan with annotations highlighting important points for the submission.

# Implementation

Over 1,500 students

# Implementation

Select	User picture	First name / Surname	ID number	Email address	Department	Status	Grade	Edit	Last modified (submission)	Submission comments	File submissions	Last modified (grade) ▾	Feedback comments	Annotate PDF
<input type="checkbox"/>						Submitted for grading Graded	Grade 63.64 / 100.00	Edit ▾	Wednesday, 15 April 2020, 1:29 PM	+ Comments (0)	 new doc 2020-04-14 16.26.06.pdf 15 April 2020, 1:28 PM	Friday, 17 April 2020, 9:54 PM		
<input type="checkbox"/>						Submitted for grading Graded	Grade 63.64 / 100.00	Edit ▾	Wednesday, 15 April 2020, 3:31 PM	+ Comments (0)	 Scan.pdf 15 April 2020, 3:30 PM	Friday, 17 April 2020, 4:39 PM	 Don't forget to include which questions have been answered in your cover sheet.  Don't forget to number your pages. This is to help you ...	
<input type="checkbox"/>						Submitted for grading Graded	Grade 90.91 / 100.00	Edit ▾	Wednesday, 15 April 2020, 5:25 PM	+ Comments (0)	 - EG101.pdf 15 April 2020, 5:25 PM	Friday, 17 April 2020, 4:32 PM	Make sure that all pages are the right way up.	
<input type="checkbox"/>						Submitted for grading Graded	Grade 81.82 / 100.00	Edit ▾	Wednesday, 15 April 2020, 2:54 PM	+ Comments (0)	 _EG101.pdf 15 April 2020, 2:52 PM	Friday, 17 April 2020, 4:30 PM	 Your submission is less than 10 pages and some apps will only scan 10 pages. We strongly recommend that you scan more than 10 pages to ...	
<input type="checkbox"/>						Submitted for grading Graded	Grade 81.82 / 100.00	Edit ▾	Wednesday, 15 April 2020, 2:49 PM	+ Comments (0)	 EG101 Submission .pdf 15 April 2020, 2:48 PM	Friday, 17 April 2020, 4:29 PM	Please write the question numbers vertically.  Please make sure you include both the module code, and your id number in the filename.	
<input type="checkbox"/>						Submitted for grading Graded	Grade 72.73 / 100.00	Edit ▾	Wednesday, 15 April 2020, 2:52 PM	+ Comments (1)	 EG101_ .pdf 15 April 2020, 2:50 PM	Friday, 17 April 2020, 4:27 PM	 Try to have your work perpendicular to your light source, this helps mitigate shadows.  Please write the question numbers vertically.  Don't ...	
<input type="checkbox"/>						Submitted for grading Graded	Grade 54.55 / 100.00	Edit ▾	Wednesday, 15 April 2020, 3:34 PM	+ Comments (0)	 New Scan 2020-04-15 1528.pdf 15 April 2020, 3:34 PM	Friday, 17 April 2020, 4:24 PM	 Please make sure you include both the module code, and your id number in the filename.  Your submission is less than 10 pages and some apps...	



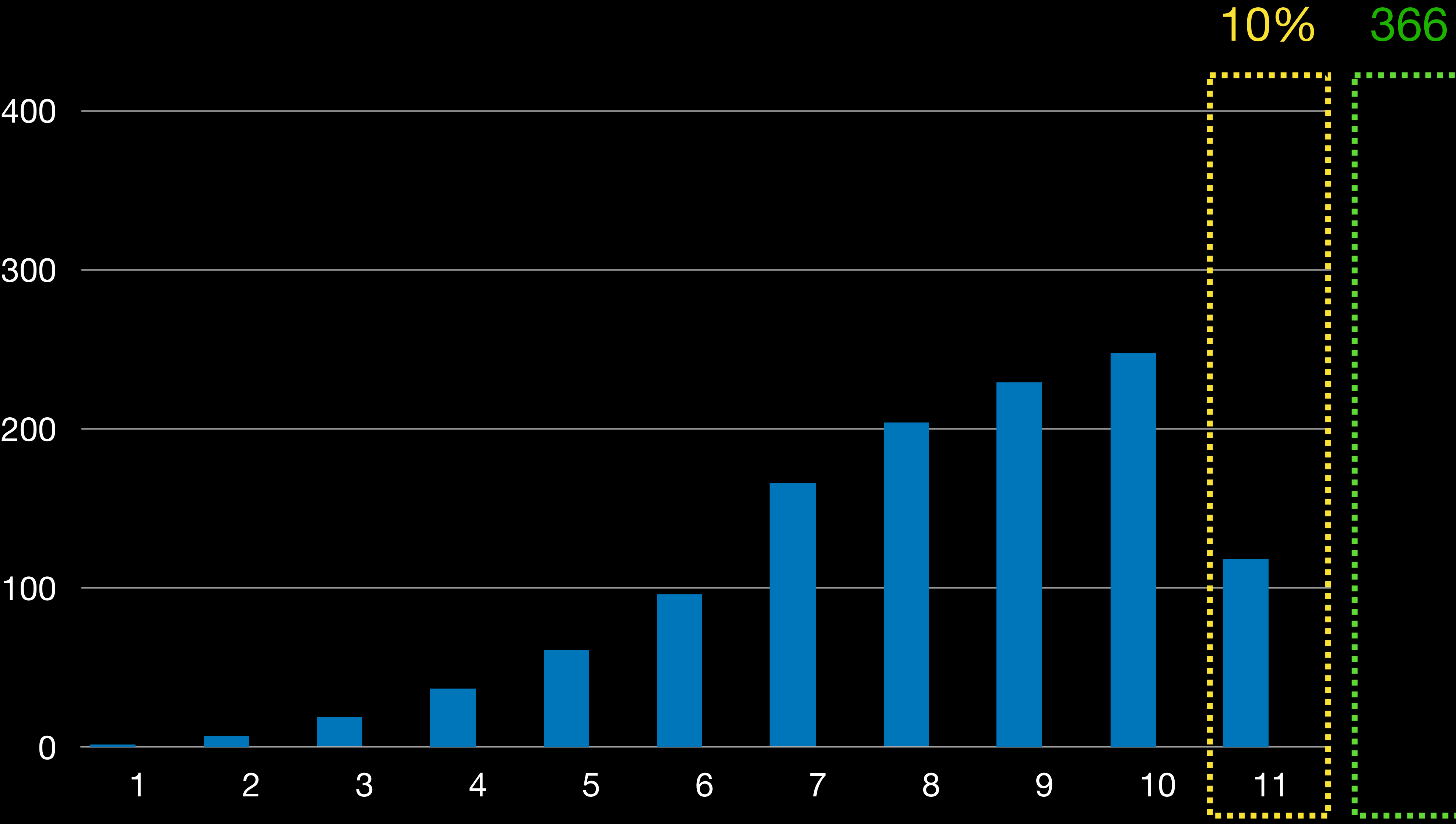
# Implementation

Grade:

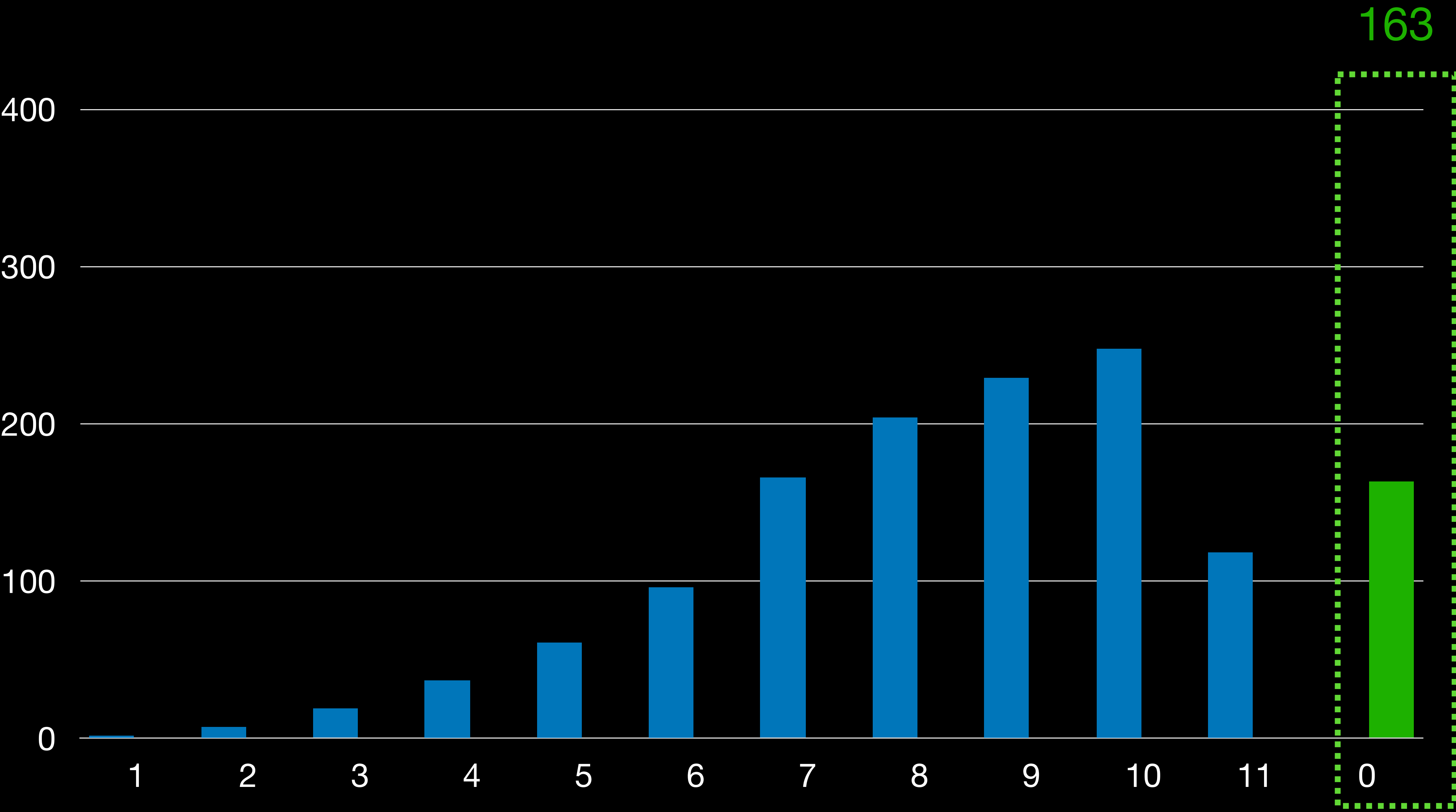
Fully submitted (not draft)	No	Yes	
File name contains ID number and module code	No	Yes	
Files contains more than 10 pages	No	Yes	
Pages are centred and trimmed appropriately	No	Could be improved	Yes
			When using software that auto detects your page edges it helps to try and place your work in the centre of the table/desk to avoid it being confused by the surface's edges and if possible on as dark of a surface as possible.
Cover sheet contains ID number, module code and date	No	Yes	
Cover sheet contains answered questions written	No	Yes	

Space left in margin	No	Yes	Margins are a little bit narrow. You may find it helpful to draw in a margin
Pages are numbered	No	Yes	Don't forget to number your pages. This is to help you keep them in

# Implementation



# Implementation



## Implementation

- For live papers, issues were small both relatively and absolutely
  - Big submissions
  - Landscape
- All arose from those that didn't complete the practice.



# Implementation

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# Implementation

Staff side

## Implementation

Course: Martyn Parker Sandbox  
Assignment: Online Marking Test

Participant 2745901

View all submissions

Change user

1 of 6

Page 2 of 12

Question 1

(a) Region of integration

The diagram shows a Cartesian coordinate system with the x-axis and y-axis. A curve labeled  $y = \log x$  starts at  $x=1$  on the x-axis and goes up to  $x=e$ . A vertical dashed line is drawn at  $x=e$ , and a horizontal dashed line connects the point  $(e, 1)$  on the curve to the y-axis at  $y=1$ . The region between the curve, the x-axis, and the line  $x=e$  is shaded with diagonal lines. To the right of the graph, the equations  $x = e^y$  and  $y = \log x$  are written.

①

$$\int_0^1 \int_{e^y}^e dx dy$$

Change in order of integration ✓

$$\int_0^1 \int_{e^y}^e \frac{y^2 e^x}{(\log x)^3} dx dy = \int_1^e \int_0^{\log x} \frac{y^2 e^x}{(\log x)^3} dy dx$$
$$= \int_1^e \left[ \frac{y^3 e^x}{3 (\log x)^3} \right]_0^{\log x} dx$$
$$= \int_1^e \frac{(\log x)^3 e^x}{(\log x)^3 \cdot 3} dx$$
$$= \left[ \frac{1}{3} e^x \right]_1^e = \frac{1}{3} (e^e - e)$$

2/2

Draft annotations saved

Notify students ☐ Save changes Save and show next Reset

- Developed a preparation/  
marking/moderating/finalise  
workflow around Teams, Planner  
and Flow.
- Marking on Moodle.
- Invested in tablets at the start.
- Tested and iterated process with  
staff volunteers.

# Outline

Operating context

Assessment design

Implementation

Successes, challenges and thoughts for the future

# Successes, challenges and thoughts for the future

Successes



# Successes, challenges and thoughts for the future

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# Successes, challenges and thoughts for the future

Successes	Thousands took examinations, they were marked, went to exam boards
	Working with students: new approach worked well.

## Successes, challenges and thoughts for the future

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Challenges	



## Successes, challenges and thoughts for the future

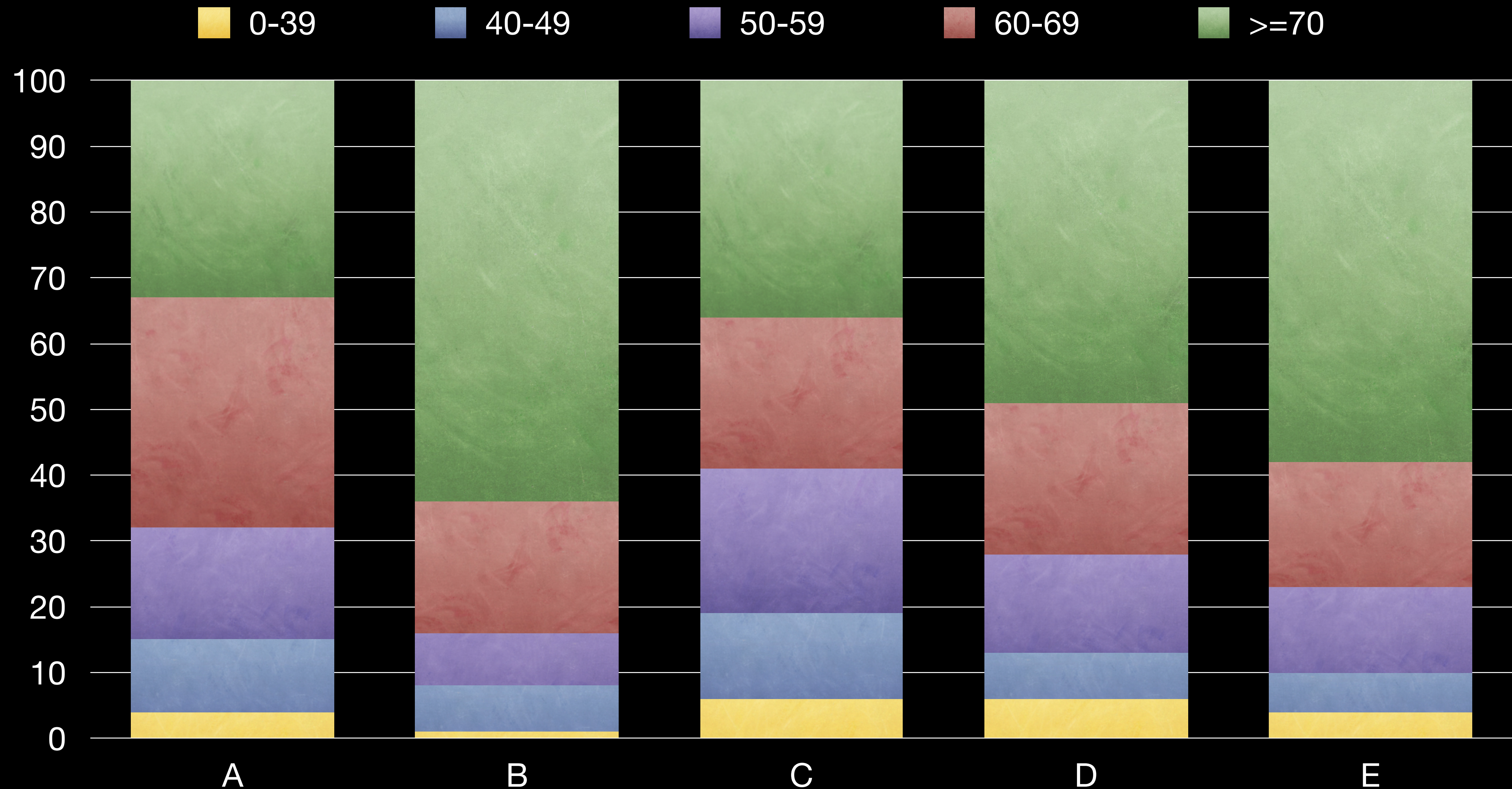
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	Assessment design: open book vs closed book and hard vs easy.
	Don't underestimate the challenges that some students have/will face.

# Outline

Operating context

Assessment design

Implementation

Successes, challenges and thoughts for the future

# Outline

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Successes, challenges and thoughts for the future

Questions