EP diary

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July 10, 2018

Date	Work covered	Problems encountered	What next?	Notes if applicable
2017-11-16	Filled out PPR	Wasn't yet entirely sure about fine details	Complete the timescale	(entered retroactively)
2017-11-23	Decided in what format to store this diary and then created it	Also considered tsv and what date format to use	Improve the timeline and add to the diary	
2017-11-23	Wrote a short script to display the diary in HTML form	Making this convenient and debugging/considering libraries	Add to the diary and maybe do something similar for timescale	
2017-12-04	Worked through the material on researching and referencing (AO2) from the sharepoint (to catch up on missed lesson)	Not sure what the abbreviations should be used for	Start to apply this to my own research	(This was entered on 12-07)
2017-12-07	Evaluated some previous pupils' EPs - found out that lots of marks are awarded for things other than actual writing	How the marking actually works	Expand my own timescale/diary and PPR	
2017-12-14	Got my dad to peer review my project so far	The timescale and diary can be a little unclear and haven't started dissertation	Try to add more information to each diary entry and perhaps develop a Gantt chart	
2017-12-20	Did some research on Hamming codes and took some notes on the application/implementation	0-based vs 1-based indexing	Start to translate to actual code	
2017-12-30	Started planning how to implement a Hamming encoder in binary Python		Start to implement the binary data formats and algorithms	
2017-12-30	I also edited my timescale, to reflect what I think is a more realistic view of what will happen and when it will happen.	It can be tricky to estimate how long tasks will take, and I think I especially get easily distracted if I'm working on something I find interesting.	Probably write some more code.	
2018-1-4	Started to implement the Hamming encoder	Indexing into data vs code	Finish the program and write test plan	Uses list/bit representation
2018-1-4	Considered available primary research	Survey is very much inapplicable here	Contact Leo and Aylwyn	

2018-1-7	Completed and implemented test plan for Hamming encoder	Remembering / researching how to use unittest	Eventually add some more test cases/use real world or generated data	Start to work more on dissertation/how to present program
2018-1-11	Decided on using LaTeX to write my dissertation and researched and experimented with different themes	Latex workflow (using pdflatex and repeated compilation) and some latex bugs	Start to write the document and look at bibtex	
2018-1-22	Started to develop the LaTeX document structure and made a rough first draft of dissertation (testing ideas and aesthetics)	What font size to use	Also consider how diagrams might be incorporated	I can reuse some of the things found doing computing assignments
2018-1-25	Reviewed progress so far	OneDrive didn't really sufficiently reflect what I'd done	Fill in bits of diary and upload stuff to OneDrive	
2018-1-25	Started looking at TikZ to present a mindmap of my project/initial thoughts	Using tikz without graphical bugs and realised I wasn't entirely sure how I would present my project as a mindmap	Continue to work on mindmap/look at how to include it in dissertation	
2018-1-29	Researched BibTex and set up the .bib file w/ makefile. Got two original sources (see sources.bib)	How to cite an introductory-type PDF in bibtex (ended up using @misc)	Continue to research and add sources. Also add a source tracker rather than just a bibliography	
2018-2-1	Found two more sources and cited them in .bib file	Choosing appropriate tags and figuring out how to cite with bibtex	Continue to find sources/think about where the sources can be incorporated in dissertation	
2018-2-1	Retroactively documented problems and approach in diary	Frustration with inadvertently incorrect data entry	Continue to fully document what I do	
2018-2-1	Updated the Python HTML compiler script to warn of bad csv formatting (to prevent frustration)		I really want to improve the format and content of my timescale	
2018-2-13	Found paper on polynomial codes which I took some notes on and then added to my bibliography	It seems quite sophisticated and is a little dense	At some point consider how these might be implemented	
2018-2-16	Found a good paper on Hadamard codes and did some other research on Hadamard codes	The actual paper doesn't seem entirely applicable	Implement basic Hadamard codes and isomorph to DNA	
2018-2-19	Started to write the Python code to generate Hadamard matrices	Whether to use numpy or make a custom matrix class	Write a test suite and complete the code	

2018-3-1	Finished the Hadamard matrix program	Decided not to use an object oriented model due to the introduced overhead and instead used primitive lists. I also decided to modify the 1/-1 system to be boolean 1/0 as this fits my requirements better	Finish the testing scheme	I also found another more appropriate source to use for hadamard codes
2018-3-7	Signed up for a JSTOR account under the school network after finding out that could be done on the library sharepoint		Use this to find more papers and see if any existing sources I have are on there so I can use JSTOR to cite them	
2018-3-7	Found a number of papers on Hadamard codes and polynomial codes	Some of them contain some very dense mathematics in niche fields	I want to find more sources and also I want to figure out how to use a Harvard style with BibTeX	
2018-3-8	I spent a while configuring natbib for use with my dissertation so now my references and citations are all in the Harvard style	There was a conflict between natbib and savetrees with the extreme parameter so I had to change to fullpage	Write a Hadamard tester and start to write about Hadamard codes/matrices in dissertation	
2018-3-9	Changed my source tracker so that I now have separate columns for evaluation and content to provide clearer evidence of research	I spent about an hour trying to make my LaTeX table pretty (worth it)	Start writing the actual evaluations/content summaries for each source	
2018-3-11	I wrote the evaluations for a number of sources.	As my sources are currently almost all articles/papers, the evaluation becomes a little monotonous. This also perhaps doesn't fully demonstrate that I can also evaluate less reputable sources.	Find a "bad" source (eg Daily Mail article or a forum post) to add some variation.	
2018-3-15	Today I figured out how to use latexmk instead of just pdflatex or latex. This made the work of compiling a lot easier.	I had to install latexmk and create an appropriate config file, and figure out how to use the various parameters.	Incorporate this into my workflow, and start setting out my "problems etc" document more thoroughly.	
2018-3-18	I spent some time writing about problems I faced and how I overcame them with more detail, using my diary.	It was a bit difficult to succinctly phrase how everything was "overcome"	I should fill this in more fully	
2018-3-22	We did the peer review in class, where we each assessed each other's work wrt AOs.	It was a bit of a challenge to immerse yourself in someone else's project, and also difficult to judge how to apply AOs (not too harshly, not too nicely). The feedback I received was a little lacklustre.	I should take note of the feedback I received and respond to it/ work around it.	

2018-3-25	I spent some time writing my dissertation, focusing on the explanation and visualisation of the Hamming distance, and parity.	I spent some time thinking about good ways to communicate visually and in words the principles behind the Hamming distance.	It would be good to produce some graphics to illustrate parity
2018-3-29	I worked on explaining the idea of parity and produced a sample row/column parity encoding	I had some trouble with including the graphic I had made in my dissertation, but eventually I figured it out.	While of course relaxing over half term, I think I should also do some more programming.
2018-4-8	After installing my new operating system over half term, I successfully moved my project over to it. This was made very easy due to my usage of git as a versioning system. I also had to install the whole LaTeXtoolchain, but this went off without a hitch.		
2018-4-8	Having succesfully migrated, I started work on the Hamming decoder	I had several bugs to do with indexing - I got a lot of off-by-one errors. I also haven't fully tested it yet	I should write some unit tests
2018-4-12	I re-read the specification for an EPQ and saw that I needed to include some student information (candidate no., etc), and then added this.	It was easy enough to put it, but I wanted all the information to line up nicely as well	I should probably write some more actual bulk of the dissertation
2018-4-19	I wrote a bit about complexity and asymptotic complexity, and produced a graph of $\sqrt{x}$ vs $\log_2 x$	Graphing things in LaTeXis apparently very complicated. I ended up producing something worthwhile with pgfplots.	I should get a move on with quaternary Hamming stuff.
2018-4-26	After finding a bug in the Hamming implementation, I spent some time debugging and writing more tests.	This bug was quite tiresome to find due to the size of my code base.	I should definitely be writing more unit tests.
2018-5-4	I produced a graphic in Postscript to show how Hamming parity coverage works.	Again had some trouble but eventually figure out how to use includegraphic together with a figure and graphicx.	I'm starting to run out of code I've written to write about, so definitely more programming after exams.
2018-5-28	I have totally changed my preamble, so the entire look and feel is much different, and it's less instantly recognizable as a basic LaTeX article.	I had some trouble with font installation and location, but got there in the end.	I could write something about how this shows my progress in skill with LaTeX. Also get cracking with coding.

2018-5-29	I finished off the Hamming decoder, adding compatibility with generic bases and writing tests for it, and wrote some of the corresponding section of the dissertation	There were several nasty bugs with defaults and indices, and just an overall bad approach to parsing arguments. However, as I have pulled through my whole code base should be more maintainable now.	I should also have a go at writing direct conversion between binary and quaternary, and maybe some helper mutation/verification scripts.
2018-5-30	I wrote two programs: one simulating mutation in input data, and one verifying the integrity of input data. This was very useful as it lets me "trial" my program without wasting any bioinformaticians' money.	I had to think a bit about the design of the mutation simulator, as it can be quite intricate to simulate a biological process in silicon hardware.	Should write a hadamard decoder, and with that probably some string distance utils.
2018-5-31	I started work on writing string distance utils, with a bit of research on Hamming vs Levenshtein.	It's apparently actually quite difficult to do efficiently. I will keep working but maybe also think of some other options.	
2018-6-1	I realised that I would probably need a lot more explanation of what the code all does so I started writing documentation and comments in earnest. I also added a little preamble to my dissertation talking about comment conventions.	Had some trouble deciding what kind of format/tone/expertise to use in my comments.	I should probably keep doing this and think about accessibility to examiners elsewhere too.
2018-6-2	I wrote some more documentation, and also added some definitions for frequently used computing jargon to the preamble of my document. I think this will be good for the readability of the whole affair.	I wasn't entirely sure how best to format definitions, but I found a good solution online.	Make sure all of my paperwork is up to date and on OneDrive
2018-6-4	I got my paperwork on OneDrive…		I should neaten up my mindmap and notes