Exemplar

NZQA

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

**QUALIFY FOR THE FUTURE WORLD
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!**

Level 1 Digital Technologies CAT, 2018

91887 Demonstrate understanding of compression coding for a chosen media type

Credits: Three

INSTRUCTIONS
put your identification information in a header

Choose ONE option:

1. **School Sports Day**
   OR
2. **School Rock Band**

Use the information from your chosen option to answer the questions to produce a short report. You must write about the option you have chosen. You may use this information and additional information and examples from your course.

You cannot use information from the Internet. You cannot position links in your answer.

Your answer may be sampled and compared with answers from other candidates to ensure it is your own work.

You should aim to write between 600 and 1000 words. You can expand (or reduce) the text boxes as needed.

Save your work with the file name schoolcode-yourNSN-91887.pdf.

Your teacher will tell you where to save this file.

Merit

06

1.   School Sports Day

As head of the school student media team, you have been asked to organise photography for the school sports day. You have a team of photographers to assist you with this task. All of them will be using digital SLR cameras. All files will be downloaded from the cameras to a shared drive on the school network.

Required outputs
1.   Photographs for the school magazine
2.   Photographs for the school newsletter (online and printed)
3.   Photographs for the school website and Facebook page, including a gallery page with thumbnail links to full size images.
4.   Photographs of athletics champions or students who break school athletics records will be printed and framed (A3 size)
5.   The school archives also require photographs, where they will be stored on the school network for future use.

Questions
1.   **What format would you have the cameras set on, RAW or JPG? Explain your answer in detail.**

The format that I would have the cameras set on is RAW. Reason for this is because it gives a more authentic view of the photoshoot. Many editors set their cameras on Raw so it can give the editors more editing options for future use, especially if the student media team wants more people to view this event. Since the images are uncompressed, once the editing is done we can convert the images to JPG. RAW is an uncompressed file which makes the image more detailed once shot. Raw is good to use because it has no compression and gives out its original state while for JPG once the photo is taken it compresses automatically without you even knowing but still gives you decent quality.

2. **Explain how uncompressed files are represented using bits.**

How uncompressed files are represented using bits is each bit represent amount of colours being used. 8 bit is the lowest bit but 8 bits = 1 byte. As the bits increase the more colours are available to use. From the two main tones, black and white to every colours available and shades which is 128 bit. How a lossless compression method works is a colour is represented by a series of numbers, the colours are all added to 256 colours (which is the max). Each colour represented number is 8 digits long because 8 bits = 1byte. All of the 256 colours fall into 3 colours call RGB (standing for Red, Green and Blue which are the three essential colours).Each colour has a code for each of the three colours and once each of the three colours are position in the allocated space, a colour would be formed.

3. **Explain how compression affects the image from a viewer's perspective.**

How compression affects the image from a viewer's perspective is based on what type of file and compression method is used. Certain format uses one compression method out of these following compression method, Lossless and Lossy. Lossless is a compression method where an image is compressed but less of the image's quality is loss but the file is still quite big. For lossy it compresses the image as Lossless but the disadvantage of this compression method is the image quality is loss and the image is not as detailed and precise as it was in its uncompressed form. The good side to using lossy method is the file is small which makes more storage for other things. How both of these compression affects the image from a viewer's perspective is for lossless it would take time for the image to load especially on website, the file is too big and could eventually crash the website while for lossy the quality of the image is affected for a human eye does not experience what the photographer experience as the photo was shot in this format.

4. **For *two* of the school's output requirements, (see above) state what type of compression you would use ensuring that you:**

(b) **Explain why you would use lossless or lossy compression, outlining the advantages and disadvantages of each compression type for the specific output.**

(a) **Justify your decision for each output, explaining why your chosen type of compression would be the most appropriate**

*** You may add information from your own course work to support your answers***

6.   School output requirement 1: Photographs for the school newsletter (online and printed)

For this output to be executed my team would use JPG which uses the compression method of lossy. The reason for this is because it provides more storage for other things to do. This type of compression would be most appropriate because if the file size is too big like the format tiff, it would take longer than other format to load online. But for printed it would be good for the usage of Jpg and lossy compression because it is just enough in detail for a human eye to enjoy seeing on the newsletter and also adding to that, jpg images is clear enough to see the main object or focus of the images but only if u zoom up (which u cannot do on printed newsletters but on online) you can see the images being pixelated and been breaking down into small blocks called pixels. So my final decision on this output is that to have the images in Jpeg and lossy compression photograph but knowing the quality of image would not as good as the original.

7.   School output requirement 2: Photographs for the school magazine

For this output to be executed, my team would use lossy compression because it compresses the image into a smaller file size than the original, still with the original quality, which would be appropriate for this output. For normal magazine the images that are in it are not pixelated but very define and smooth. Both Jpg and Png are use in magazine for images. The usage of lossy compression would be appropriate for this type of output because my team knows that many images on magazines are Jpg, with knowing that it supports lossy compression for once this method completed the file size will not take so much space and provide a decent images for the viewers, it doesn't take as much as lossless does and left more storage for future use. But the downfall of this compression method that I have examined and determined to take is the quality of the images, it will be a good images but not a great image that I have encountered. The quality of the images will not only affect the magazine but will affect the team who created it. I think that lossy compression is appropriate for this scenario because my team need more space for other outputs such as photoshop files and many more. Adding to that, knowing that all files will be downloaded and uploaded to the shared drive on the school network, it would be great if we had more space because I know for a fact that my team will go and take as many photos as possible and fill up that space on the cameras. So I reckon it's good to compress the images but don't take away the quality of the images.

Merit Exemplar 2018

Subject	Level 1 Digital Technologies CAT 2018		Standard	91887	Total score	06
Q	**Grade score**	**Annotation**				
1	M	The student provides reason, with justification, as to their choice of camera setting.				
2	M	The student provides a succinct description of how uncompressed files are represented using bits. More reference to the technical aspects of this, with examples would lead to a higher grade.				
3	M	The student explains their chosen file types for each selected output, with justification for each.				