FACTFILE:
GCSE DIGITAL TECHNOLOGY
Unit 3
DIGITAL AUTHORING PRACTICE

Rewarding Learning

AB Testing + Accessibility

Significance of testing and developing of appropriate test plans

Learning Outcomes

Students should be able to:

- Explain the role of testing in the development process including an iterative approach
- Describe the features of an effective test plan
- Explain the following approaches to testing
  - White box
  - Black box
  - System
  - Alpha
  - Beta
  - A/B
- Describe how to test the following in a multimedia package; navigation, multimedia asset operation, load times and script testing

Role of Testing

Testing is a very important stage in the software development process. The software must work as expected, otherwise the client will not be happy. The software should be fully tested to allow for all the possibilities that an end user may try when using the software. Problems found during testing are known as bugs. Bugs must be fixed and then the software must be retested. It is important to document the process of testing to ensure that it is firstly carried out in a logical and methodical manner and secondly to provide evidence that the test were carried out.

What is in a Test Plan?

The test plan is a written document and usually contains the following information:

1. Test number
2. Test Description
3. Test data
4. Expected Outcome
5. Actual Outcome

Let's say a spreadsheet is used by teachers to enter students' results in their exams. The acceptable range of data is 0 – 100.

Test No	Test Description	Test Data	Expected Outcome	Actual Outcome
1	Test that 0 will be accepted	0	Data is entered. No error message should appear.	
2	Test that 100 will be accepted	100	Data is entered. No error message should appear,	
3	Test that negative numbers are not allowed to be entered	–5	An error message should appear	
4	Test that letters are not allowed	Hello	An error message should appear	
5	Test that normal data is accepted	55	Data is entered.	

Test Data

1. **Normal Data**: data that the program will accept.
2. **Extreme Data**: data that is on the limits of acceptability.
3. **Exceptional Data**: data that when entered should be invalid and not accepted.

Activity

Can you identify the different types of data in the test plan above?

Types of Testing

White box Testing

White box techniques analyse the structure and logic of the program. This is then used both to help monitor the depth of testing and to guide selection of appropriate data that will cause areas of code to be run that have not yet been executed.

Black box Testing

Black box techniques see the software as a 'black box' with inputs and outputs but no understanding of what is happening within the black box. When testing, suitable inputs are selected based upon the interfaces of the system or module.

System Testing

This is making sure the system works as described in the specification. This is done by following a test plan to test each individual system function. It will also test that each individual function works with extreme or invalid data. System testing will also ensure that the system produces the correct results for the data input.

Alpha Testing

Alpha testing is carried out first, before beta testing. It is carried out inhouse by the developers when they believe the product is ready. Test data is used.

Beta Testing

Beta testing is carried after alpha testing. The product is given to a range of potential end users to see if they can find any problems. Live data is used. The end users provide feedback to the developer who will try to fix any problems found.

A/B Testing

A/B testing (also known as split testing) is a method of comparing two versions of a webpage or app against each other to determine which one performs better.

Testing a Multimedia Package

Navigation

When testing a multimedia package, it is very important that the navigation through the product is fully tested. All buttons and hyperlinks, both internal and external should be tested. It is important that the user doesn't get 'stuck' in the package and are always given the option to return to the main screen. All possible options through the package should be tested. Navigation should be obvious and intuitive where possible.

Multimedia asset operation

All multimedia assets should be fully tested within the packages. This includes checking that all images load, videos play (including sound), animations work, scrolling text move etc. These should all be tested in different browsers and on different platforms.

Load times

End users today are very impatient and expect websites and apps to open and load quickly, therefore it is very important to test that the package opens in an optimum time.

Script testing

Script testing is a set of instructions (written using a programming language) that is performed on a system under test to verify that the system performs as expected. Test scripts are used in automated testing of multimedia packages.

Questions

1. A password for a new social media platform must be at least 8 characters long and contain letters and numbers. Identify at least 3 different tests that should be ran to ensure that normal, extreme and exceptional data is tested. (6 marks)
2. Describe the difference between alpha and beta testing. (4 marks)
3. Describe the difference between white box and black box testing. (4 marks)