Lesson 6 - Dealing with Data

Expected Time: 45 - 60 minutes.

Aspect of National Curriculum Programme of Study covered:

KS2 objective a - Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts

KS2 objective b- Use sequence, selection and repetition in programs; work with variables and various input and output

KS2 objective f - Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.

Objectives
Student will be able to;

- design a programme where a particular outcome will happen based upon an action inputted by the user
- select, use and combine a variety of software and programs to create a required outcome
- collect, analyse, evaluate and present data

Ongoing objectives

- Use technology respectfully and safely
- Understand that communication online can be seen by others
- Evaluate and select digital online content responsibly and discerningly

Activity

Step 1. In this lesson we are going to build a database add users and then extract information from the database. Start by opening up a new whiteboard session Click here to open in a new tab

Step 2. Click on the left hand box on the whiteboard page and type in the following commands.

```
newobject mydb
newobject mydb.user1
set mydb.user1.name John
set mydb.user1.email john@gmail.com
```

So first we are setting up a new object called mydb (db is just short for database). Then we add another object which will be the first user. We then use the set function to set data for each user including name and email. The set command always works with the function variable info. i.e. set myvariable Text. So the variables we are setting are the name and email address for user1 in the database.

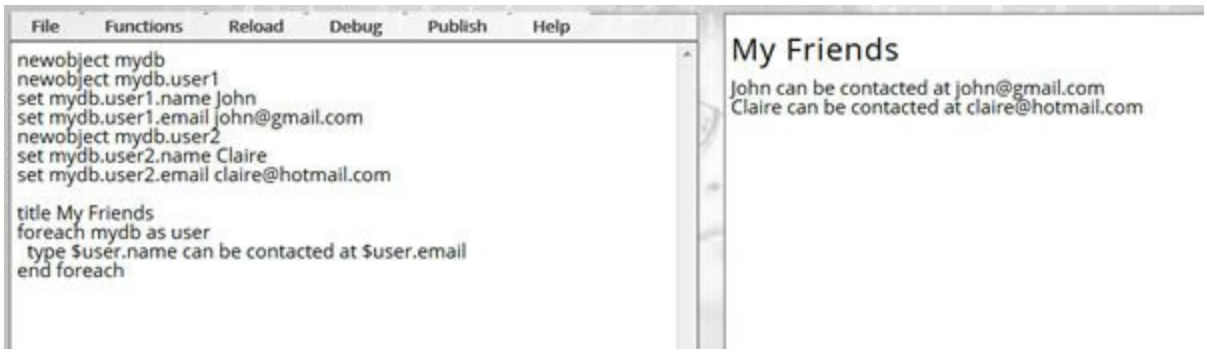
Step 3. Now lets add a second user the same way we added the first. You can change the names and email addresses if you like.

```
newobject mydb.user2
set mydb.user2.name Claire
set mydb.user2.email claire@hotmail.com
```

Step 4. We have now set up a database with two users you can add more as you like later on. Now let's try extracting some information from the database. We will set a title for the page and then use a foreach loop to go through every user in the database.
title My Friends

```
foreach mydb as user
  type $user.name can be contacted at $user.email
end foreach
```

Step 5. Now lets reload the page and see if the data has been loaded in and out of the database. If you have no bugs you should be presented with output like the below screenshot.



Step 6. Try adding other users or adding more fields to the database. Expand the database with the information you want to store and use. Databases are used a lot throughout the web, you can read about what information a website is collecting about it's users in the privacy policy.

ChildScript.com - Lesson Notes

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This lesson shows how data can be stored and extracted within a computer programme.

By the end of the lesson the children should have created a button which, when pressed, links to google search engine and displays results.

newobject

The first and second lines of code use the newobject command. First we create an object called mydb. This is going to be our main database. We then create a second "branch" of that object by placing a fullstop the name of the branch i.e.

newobject mydb.user1

This simply tells the programme that there is now a main object called mydb with a branch called user1.

We then go on to add useful data to the mydb.user1 branch.

names and email

In the lesson we have entered details for name and email using the set command.

set mydb.user1.name John

We can change name to whatever we want to store. Just make sure it is all one word and note it is case sensitive. So if we want to store details about John's shoe size we simply add a line

set mydb.user1.shoesize 11

foreach

The foreach command creates a code block which will loop through every branch of the database.

```
foreach mydb as user
  type This code will run for every user $user.email
end foreach
```

The foreach function does something else too it allows us to extract each branch to a dynamic variable called user. The user variable will be updated with details of each user in the database.

We can then access that data for that data using **$user.shoesize** or whatever info you wanted to collect.

We have added a $ to the variable to make sure it is placed within a command. In the example above we are using the type command and we want to extract the data from the variable as opposed to typing out on the screen “user.shoesize”

Variables and objects can be a little tricky but just think of them as places to store data within a computer programme.

Challenge

Expand your database to include extra users and additional data. Could you make the database more useful for something like a class register or a sports table?