Introduction to Arduino
CSE 107

Continue Linux Commands and Introduction to Arduino

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Overview

1. **Lecture**

2. **Homework**

3. **Labwork**

Lecture

- **Example 1** - Turn on and off a LED by using pin 8 (or 13).
- **Solution:**

```
void setup(){
    pinMode(8, OUTPUT);
}


void loop() {
    digitalWrite(8, HIGH);
    delay(1000);
    digitalWrite(8, LOW);
    delay(1000);
}
```

Lecture

- **Example 2** - "Hello World!" at 1-second intervals using Arduino Write the code that prints it.
  While typing, the led should be on and off. This process should accelerate gradually. To achieve the described behavior using an Arduino, you can use the following code. This example assumes that you have an LED connected to pin 13 of the Arduino board.

Lecture

- **Solution:**

```
const int ledPin = 13; // Pin number for the LED

void setup() {
  pinMode(ledPin, OUTPUT); // Set the LED pin as an output
  Serial.begin(9600);      // Initialize serial communication
}

void loop() {
  Serial.println("Hello World!"); // Print "Hello World!" to the Serial Monitor
  digitalWrite(ledPin, HIGH);     // Turn on the LED
  delay(500);                     // Wait for 500 milliseconds (0.5 seconds)

  Serial.println(""); // Print an empty line for better readability
  digitalWrite(ledPin, LOW); // Turn off the LED
  delay(500);                // Wait for 500 milliseconds (0.5 seconds)

  // Gradually decrease the delay time
  for (int i = 500; i >= 50; i -= 50) {
    Serial.println(""); // Print an empty line
    delay(i);
  }
}
```

Homework

"|": Pipe

Definition: This command is used for chaining multiple commands together and enabling doing multiple jobs in one line on the terminal.
Format: command1 | command2

Homework

mv: Move

Definition: This command is used for to move context of one file/folder to another file/folder.
Format: mv [options] [source_file_name] [destination_file_name]

Homework

- **Phase 1** - Creating File Structure:
  - Create one main directory with the name "animals" and inside this create three sub-directories as "snow_leopard", "clownfish", and "red_panda".
  - Below "clownfish" directory open two sub-directory as "maroon_clownfish" and "ocellaris_clownfish".

Homework

- **Phase 2** - Creating Text Files:
    - Every directory needs to include one text file which consist of some information about the animal. The text file names must be created same as with directories.
    - You need to create text file and add context to this file in the same line by using **pipe command**. The context needs to be first five sentences of the first paragraph. For these information use given links in below.
    - You need to create 'ocellaris_clownfish.txt' file inside the maroon_clownfish directory.
    - You need to create 'maroon_clownfish.txt' file inside the ocellaris_clownfish directory.
        - Snow Leopard
        - Clownfish
        - Maroon Clownfish
        - Ocellaris Clownfish
        - Red Panda

Homework

- **Phase 3** - Correcting Mistakes:
  - Move 'ocellaris_clownfish.txt' to under the ocellaris_clownfish directory.
  - Move 'maroon_clownfish.txt' to under the maroon clownfish_directory.
  - List all and hidden files in detailed form when you are in clownfish directory.
  - In the end your file structure needs to be same as below:

```
.
└── animals
    ├── clownfish
    │   ├── clownfish.txt
    │   ├── maroon_clownfish
    │   │   └── maroon_clownfish.txt
    │   └── ocellaris_clownfish
    │       └── ocellaris_clownfish.txt
    ├── red_panda
    │   └── red_panda.txt
    └── snow_leopard
        └── snow_leopard.txt
```

Homework

- **Phase 4** - Saving:
    - Save the whole terminal to the 'output.txt' file (both the given commands and outputs need to be seen).
    - Find this command by yourself.
- **Important Notes**:
    - Everything needs to be done on the terminal by using linux commands that you learnt.
    - Bring all files and directories that you are created and the "output.txt" file to the labwork. If not your grade will be 0.

Labwork

- **Question 1** - Changing Location:
    - You need to change your location in one line on the terminal.
    - From "animals" file go to location "ocellaris_clownfish" directory.
    - Then exit from the "clownfish" directory and go to "red_panda".
    - In the end, return to "animals" directory.

Labwork

- **Question 2** - Add Additional Lines To Files:
    - From the location of animals, add one line that includes your name, surname to each of these files: "clownfish.txt", "red_panda.txt", "snow_leopard.txt". Then in the end, print the snow_leopard.txt file to the terminal.
    - You need to do this operation in one line.

The End