**DAILY ASSESSMENT FORMAT**

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| **Date:** | **30th may 2020** | **Name:** | **Diyashree LV** |
| **Course:** | **Logic design** | **USN:** | **4AL17EC030** |
| **Topic:** | **Application of programmable logic controllers:** | **Semester & Section:** | **6th sem ‘A’ sec** |
| **Github Repository:** | **divyalv** |  |  |

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| **FORENOON SESSION DETAILS** |
| **Image of session**      **Programmable logic controller:**  A programmable logic controller (PLC) or programmable controller is an industrial [digital computer](https://en.wikipedia.org/wiki/Digital_computer) which has been [ruggedized](https://en.wikipedia.org/wiki/Rugged_computer) and adapted for the control of manufacturing processes, such as [assembly lines](https://en.wikipedia.org/wiki/Assembly_line), or [robotic](https://en.wikipedia.org/wiki/Robotic) devices, or any activity that requires high reliability, ease of programming and process fault diagnosis.PLCs can range from small modular devices with tens of [inputs and outputs (I/O)](https://en.wikipedia.org/wiki/Input/output), in a housing integral with the processor, to large rack-mounted modular devices with a count of thousands of I/O, and which are often networked to other PLC and [SCADA](https://en.wikipedia.org/wiki/SCADA) systems.They can be designed for many arrangements of digital and analog I/O, extended temperature ranges, immunity to [electrical noise](https://en.wikipedia.org/wiki/Noise_(electronics)), and resistance to vibration and impact. Programs to control machine operation are typically stored in battery-backed-up or [non-volatile HYPERLINK "https://en.wikipedia.org/wiki/Non-volatile\_memory"memory](https://en.wikipedia.org/wiki/Non-volatile_memory).PLCs were first developed in the automobile manufacturing industry to provide flexible, rugged and easily programmable controllers to replace hard-wired [relay logic](https://en.wikipedia.org/wiki/Relay_logic) systems. Since then, they have been widely adopted as high-reliability automation controllers suitable for harsh environments.  **Basic functions:**  The most basic function of a programmable controller is to emulate the functions of electro-mechanical relays. Discrete inputs are given a unique address, and a PLC instruction can test if the input state is on or off. Just as a series of relay contacts perform a logical AND function, not allowing current to pass unless all the contacts are closed, so a series of "examine if on" instructions will energize its output storage bit if all the input bits are on. Similarly, a parallel set of instructions will perform a logical OR. In an electro-mechanical relay wiring diagram, a group of contacts controlling one coil is called a "rung" of a "ladder diagram ", and this concept is also used to describe PLC logic. Some models of PLC limit the number of series and parallel instructions in one "rung" of logic.  **Communication:**  PLCs use built-in ports, such as [USB](https://en.wikipedia.org/wiki/USB), [Ethernet](https://en.wikipedia.org/wiki/Ethernet), [RS-232](https://en.wikipedia.org/wiki/RS-232), [RS-485](https://en.wikipedia.org/wiki/RS-485), or [RS-422](https://en.wikipedia.org/wiki/RS-422) to communicate with external devices (sensors, actuators) and systems (programming software, [SCADA](https://en.wikipedia.org/wiki/SCADA), [HMI](https://en.wikipedia.org/wiki/User_interface)). Communication is carried over various industrial network protocols, like Modbus, or EtherNet/IP. Many of these protocols are vendor specific.  PLCs used in larger I/O systems may have [peer-to-peer](https://en.wikipedia.org/wiki/Peer-to-peer) (P2P) communication between processors. This allows separate parts of a complex process to have individual control while allowing the subsystems to co-ordinate over the communication link.  In the most basic terms, a programmable logic controller ([PLC](https://en.wikipedia.org/wiki/Programmable_logic_controller)) is a computer with a microprocessor but has no keyboard, mouse or monitor. It is essentially built to withstand very harsh industrial environments.  It is a distinctive form of computer device designed for use in industrial control systems. It has a robust construction and unique functional features such as sequential control, ease of programming, timers and counters, easy-to-use hardware and reliable controlling capabilities.It is designed to be enormously robust, so it could withstand harsh industrial environments such as extreme temperatures, vigorous vibrations, humidity and electrical noise.The logic controllers are often tasked to control and monitor a very large number of sensors and actuators. They are therefore different from other regular computer systems in their extensive I/O (input/output) arrangements.  The PLC is also commonly used in civil applications such as in washing machines and for controlling traffic signals and elevators. They are used in many industries to monitor and control production processes and building systems.Once programmed, the PLC will perform a sequence of events triggered by stimuli referred to as inputs. It receives these stimuli through delayed actions such as counted occurrences or time delays. |
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| **Date:** | **30th may 2020** | **Name:** | **Divyashree LV** |
| **Course:** | **Python** | **USN:** | **4AL17EC098** |
| **Topic:** | **Image and video processing with openCV** | **Semester & Section:** | **6th sem ‘A’ sec** |
| **Github Repository:** | **divyalv** |  |  |

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| **AFTERNOON SESSION DETAILS** |
| **Image of session**      **Installing the Library:**  To install:   * Open the command line and type:   pip install opencv-python   * Then open a Python session and try:   import cv2   * If you get no errors, that means you installed OpenCV successfully. If you get an error please see the FAQs below:   FAQs   * My opencv installation didn't go well on Windows   Solution:   * Uninstall opencv with:   pip uninstall opencv-python   * Download a wheel (.whl) file from [this link](http://www.lfd.uci.edu/~gohlke/pythonlibs/) and install it with pip. Make sure you download the correct file for your Windows version and your Python version. For example, for Python 3.6 on Windows 64-bit you would do this:   pip install opencv\_python3.2.0cp36cp36mwin\_amd64.whl   * Then try to import cv2 in Python again. If there's still an error, then please type the following again in the command line:   pip install opencv-python  4. Now you should successfully import cv2 in Python.  2. My opencv installation didn't go well on Mac  Solution:If pip install opencv-python didn't go well please install OpenCV for Python 2 and use Python 2 to run the programs that contains cv2 code. Its' worth mentioning that Python 2 is installed by default on Mac, so no need to install Python 2. Here are the steps to correctly install OpenCV:   * Install brew:   Open your terminal and execute the following:  /usr/bin/ruby -e "$(curl -fsSL <https://raw.githubusercontent.com/Homebrew/install/master/install>)"   * OpenCV depends on GTK+, so please install that dependency first with brew (always from the terminal):   brew install gtk+   * Install OpenCV with brew:   brew install opencv   * Open Python 2 by typing:   python   * Import cv2 in Python:   import cv2  If you get no errors, that means you installed OpenCV successfully.  3. My opencv installation didn't go well on Linux  1. Please open your terminal and execute the following commands one by one:  sudo apt-get install libqt4-dev  cmake -D WITH\_QT=ON …  make  sudo make install   * If that doesn't work, please execute this:   sudo apt-get install libopencv-\*   * Then install OpenCV with pip:   pip install opencv-python  4. Import cv2 in Python. If you get no errors, that means you installed OpenCV successfully.  **Batch Image Resizing**  import cv2 import glob  images=glob.glob("\*.jpg")  for image in images:     img=cv2.imread(image,0)     re=cv2.resize(img,(100,100))     cv2.imshow("Hey",re)     cv2.waitKey(500)     cv2.destroyAllWindows()     cv2.imwrite("resized\_"+image,re)   * I first created a list containing the image file paths and then iterated through the aformentoned list. * The loop: reads each image, resizes, and displays the image; waits for the user input key, closes the window once the key is pressed, and writes the resized image. The name of the resized image will be "resized" plus the existing file name of the original image. |
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