NAME: Ali Salman Hassan.
S-ID: 63758.
C-ID: 105139.

Q) Construct a circuit using 4 button, Servo motor, LCD and arduino. Set the angle of servo at 45degree on pressing first button, on 2nd button set at 90degree, on 3rd set servo angle at180degree and on 4th button set servo at 0degree. Show the set angle on LCD and which button is pressed.

```
#include <Servo.h>
#include <LiquidCrystal.h>

Servo servo_ib;

LiquidCrystal lcd(12, 11, 5, 4, 3, 2);

int pos = 0;

void setup(){

  lcd.begin(16, 2);
  servo_ib.attach(6);
  pinMode(7,INPUT);
  pinMode(8,INPUT);
  pinMode(9,INPUT);
  pinMode(10,INPUT);
  lcd.setCursor(0,0);
  lcd.print("Ali Salman");
  lcd.setCursor(0,1);
  lcd.print("63758");
  delay(2000);

  lcd.clear();

}
```

NAME: Ali Salman Hassan.
S-ID: 63758.
C-ID: 105139.

```
void loop(){

 servo_ib.write(0);

 while(digitalRead(10) == HIGH && pos <= 45){

  pos++;
  servo_ib.write(45);
  lcd.setCursor(0,0);
  lcd.print("Button 1 Pressed");
  lcd.setCursor(0, 1);
  lcd.print("45 Degree");
  delay(2000);

 }

 while(digitalRead(9) == HIGH && pos <= 90){

  pos++;
  servo_ib.write(90);
  lcd.setCursor(0,0);
  lcd.print("Button 2 Pressed");
  lcd.setCursor(0,1);
  lcd.print("90 Degree");
  delay(2000);

 }

 while(digitalRead(8) == HIGH && pos <=180){
```

NAME: Ali Salman Hassan.
S-ID: 63758.
C-ID: 105139.

```
   pos++;
   servo_ib.write(180);
   lcd.setCursor(0,0);
   lcd.print("Button 3 Pressed");
   lcd.setCursor(0,1);
   lcd.print("180 Degree");
   delay(2000);

 }

 while(digitalRead(7) == HIGH && pos <=360){

   pos--;
   servo_ib.write(0);
   lcd.setCursor(0,0);
   lcd.print("Button 4 Pressed");
   lcd.setCursor(0,1);
   lcd.print("0 Degree");
   delay(2000);

 }

}
```

Q1) Write applications where DC motor is used?

ANSWER:

- Toys
- Air Compressor
- Elevators

NAME: Ali Salman Hassan.
S-ID: 63758.
C-ID: 105139.

- Vacuum cleaner

Q2) Write applications where servo motor is used?

ANSWER:

- CNC Machines
- Printing Machines
- Robots

Q3) Write applications where Stepper motor is used and why?

ANSWER:

- 3D Printing Equipment
- Textile Machinery
- Welding Equipment

Because it divides FULL ROTATION into a number of equal steps.