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## LAMPIRAN

Mencari nilai mAs pada alat rancangan

Hasil mA yang didapat X waktu yang didapat

$$\text{mAs setting 40} : 47,3 \times 0,69 = 32,64$$

$$\text{mAs setting 52} : 47,3 \times 0,97 = 45,88$$

$$\text{mAs setting 64} : 47,3 \times 1,23 = 58,18$$

$$\text{mAs setting 72} : 47,3 \times 1,44 = 68,11$$

$$\text{mAs setting 80} : 47,3 \times 1,69 = 79,77$$

mencari nilai error dan presentase error alat rancangan terhadap kontrol panel

### A. Nilai Error

$$|\text{Error}| = Y - X$$

Dimana :

X = nilai mAs pada alat rancangan

Y = nilai mAs pada kontrol panel

### B. Persentasi Error

$$\% \text{ Error} = \frac{|\text{Error}|}{Y} \times 100\%$$

Dimana :

Error = Nilai Error

Y = nilai mAs pada kontrol panel

$$\begin{aligned} \text{Setting 40 mAs} : |\text{Error}| &= Y - X \\ |\text{Error}| &= 40 - 32,64 \\ |\text{Error}| &= 7,36 \end{aligned}$$

$$\% \text{ Error} = \frac{|\text{Error}|}{Y} \times 100\%$$

$$\% \text{ Error} = \frac{7,36}{40} \times 100\%$$

$$\% \text{ Error} = 18,4 \%$$

Setting 52 mAs :  $|Error| = Y - X$   
 $|Error| = 52 - 47,77$   
 $|Error| = 6,12$

$$\% Error = \frac{|Error|}{Y} \times 100\%$$

$$\% Error = \frac{6,12}{52} \times 100\%$$

$$\% Error = 11,77 \%$$

Setting 64 mAs :  $|Error| = Y - X$   
 $|Error| = 64 - 58,18$   
 $|Error| = 5,82$

$$\% Error = \frac{|Error|}{Y} \times 100\%$$

$$\% Error = \frac{5,82}{64} \times 100\%$$

$$\% Error = 9,09 \%$$

Setting 72 mAs :  $|Error| = Y - X$   
 $|Error| = 72 - 68,11$   
 $|Error| = 3,89$

$$\% Error = \frac{|Error|}{Y} \times 100\%$$

$$\% Error = \frac{3,89}{72} \times 100\%$$

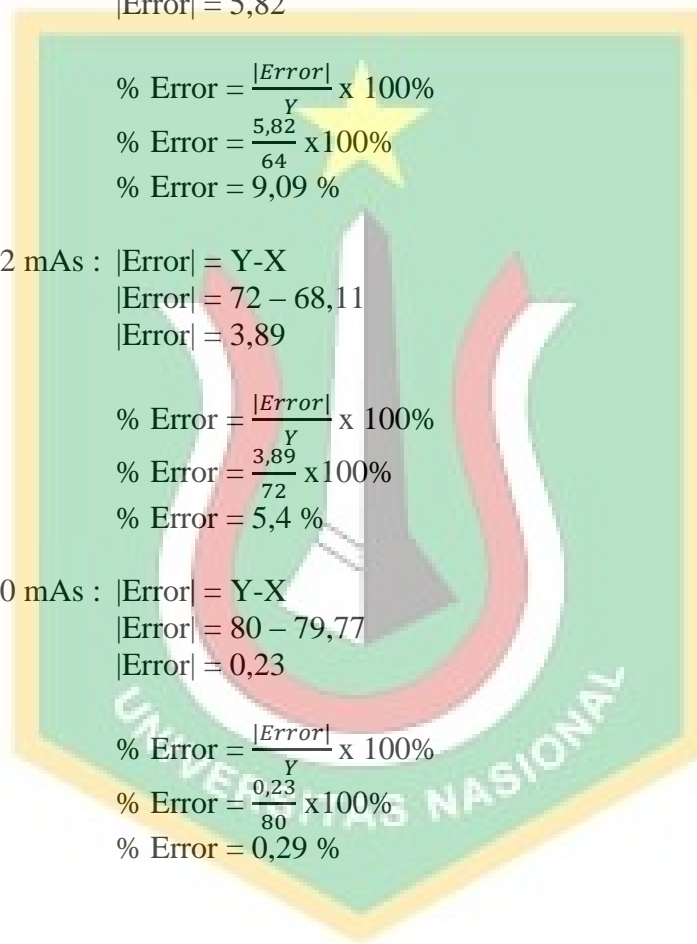
$$\% Error = 5,4 \%$$

Setting 80 mAs :  $|Error| = Y - X$   
 $|Error| = 80 - 79,77$   
 $|Error| = 0,23$

$$\% Error = \frac{|Error|}{Y} \times 100\%$$

$$\% Error = \frac{0,23}{80} \times 100\%$$

$$\% Error = 0,29 \%$$



## PROGRAM ALAT RANCANGAN

```

#include <Wire.h>
#include <Adafruit_INA219.h> // You will need to download this library
Adafruit_INA219 sensor219; // Declare and instance of INA219
#include <Wire.h>
#include <LiquidCrystal_I2C.h>
// Set the LCD address to 0x27 for a 16 chars and 2 line display
LiquidCrystal_I2C lcd(0x27, 16, 2);
unsigned long mulai, selesai, dataStopWatch;
int a=0;
int x=0;
int fPaus = 0;
long lastButton = 0;
long dataPaus = 0;
float current = 0; // Measure in milli amps
int i=0;
int data=0;
float data_current=0;
void setup(void)
{
  lcd.init();
  Serial.begin(9600);
  sensor219.begin();
  lcd.backlight();
  lcd.setCursor(0, 0);
  lcd.print("Arus tabung &");
  lcd.setCursor(0, 1);
  lcd.print("Waktu expose ");
  delay(2000);
  lcd.clear();
}

```



```

void loop(void)
{ for (i=0;i<100;i++)
current = sensor219.getCurrent_mA();
if(current>data_current)
data_current=current;
lcd.setCursor(0,0);
lcd.print("mA=");
if (data_current < 1000.0) lcd.print(" ");
if (data_current < 100.0) lcd.print(" ");
if (data_current < 10.0) lcd.print("");
lcd.print(data_current,1);
lcd.print(" ");
lcd.print("mA");
if (current<2)
{
mulai = millis();
fPaus = 0;
a =!a;
}
if (current>0.3){
selesai = millis();
float jam, menit, detik, miliDetik;
unsigned long over;
dataStopWatch = selesai - mulai;
jam = int(dataStopWatch / 3600000);
over = dataStopWatch % 3600000;
menit = int(over / 60000);
over = over % 60000;
detik = int(over / 1000);
miliDetik = over % 1000;
lcd.setCursor(0, 1);
lcd.print("s = ");

```



```
lcd.print(detik, 0);  
lcd.print(".");  
if (jam < 10){  
  lcd.print(miliDetik, 0);  
  lcd.print(" ");  
  lcd.print("s ");  
}  
}  
}
```



## LAMPIRAN ALAT RANCANG BANGUN

Alat Rancangan Pada Pengukuran 40 mAs

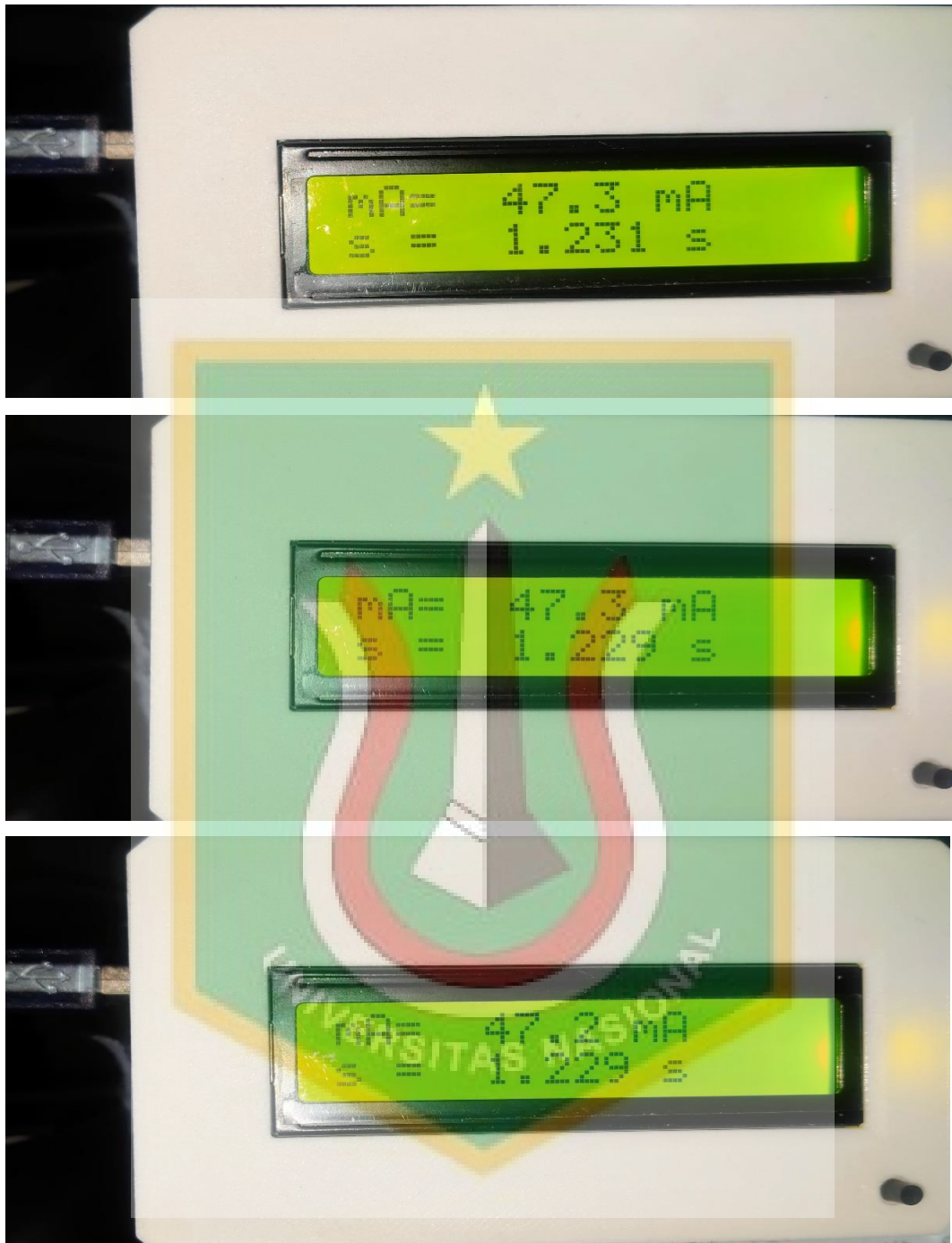




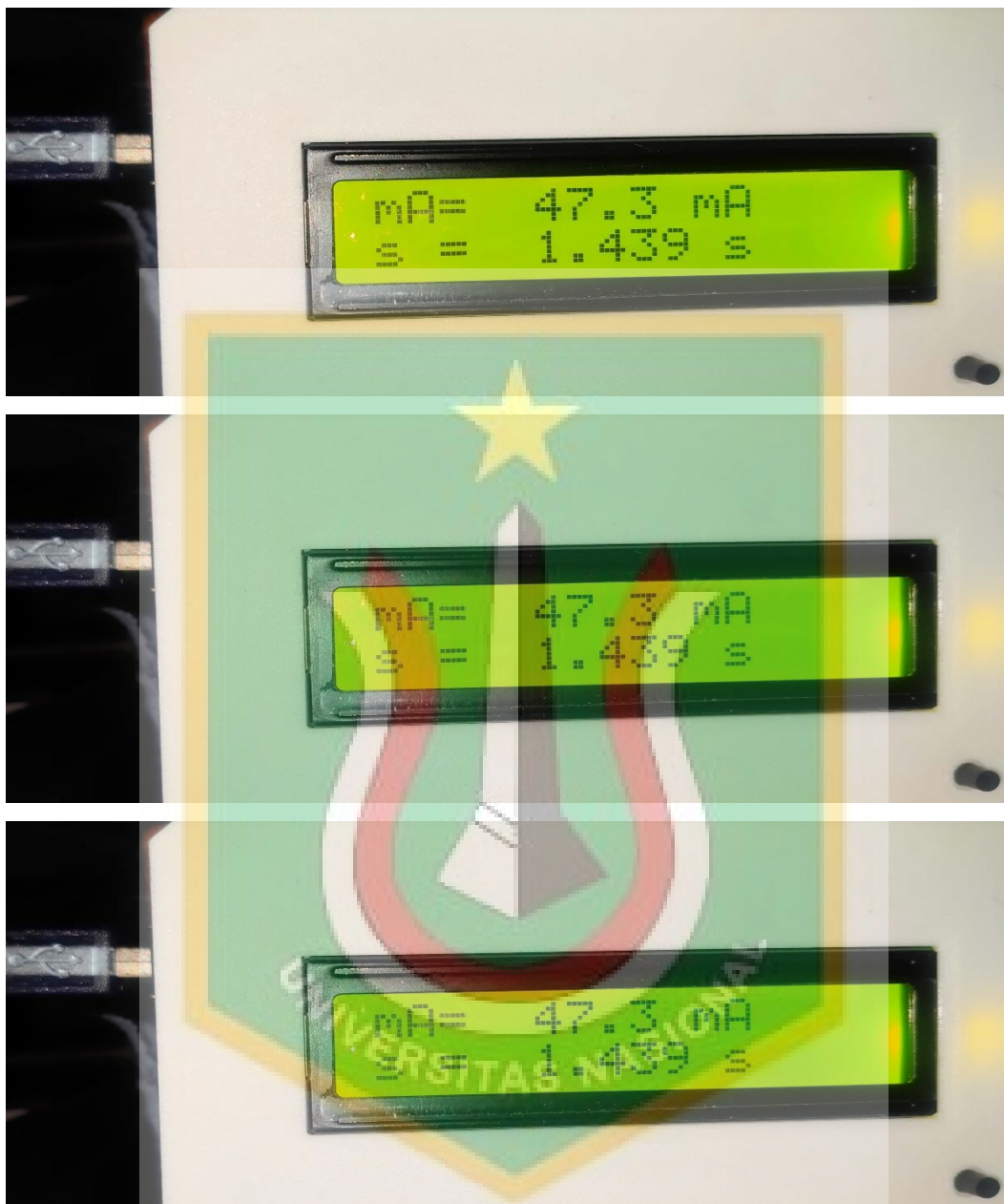
## Alat Rancangan Pada Pengukuran 52 mAs



## Alat Rancangan Pada Pengukuran 64 mAs



## Alat Rancangan Pada Pengukuran 72 mAs

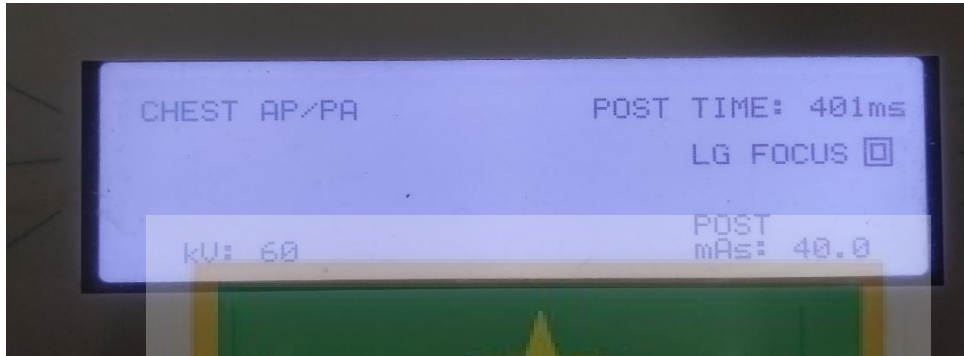


## Alat Rancangan Pada Pengukuran 80 mAs

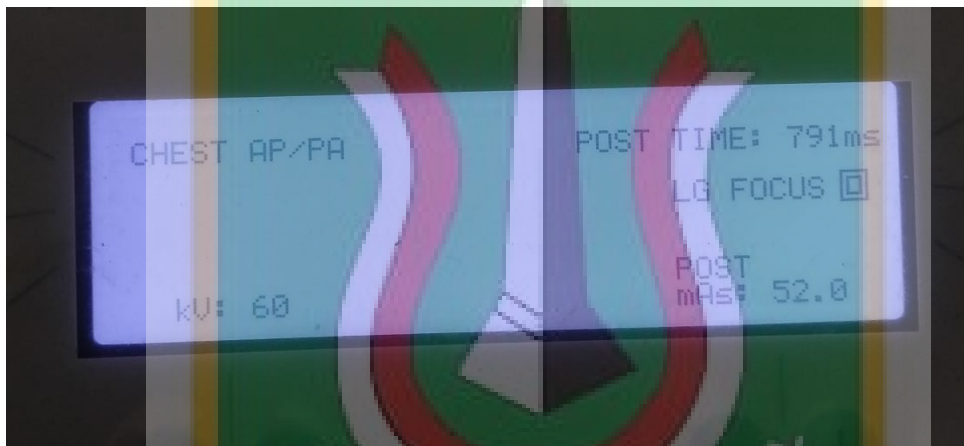


## LAMPIRAN PESAWAT MOBILE X-RAY

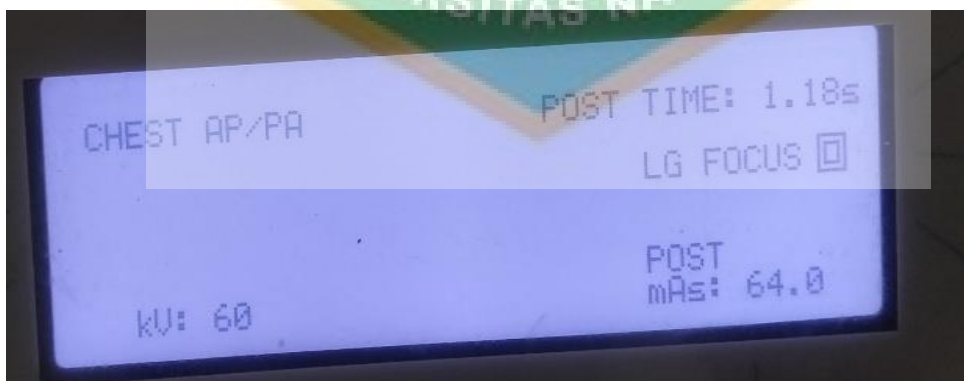
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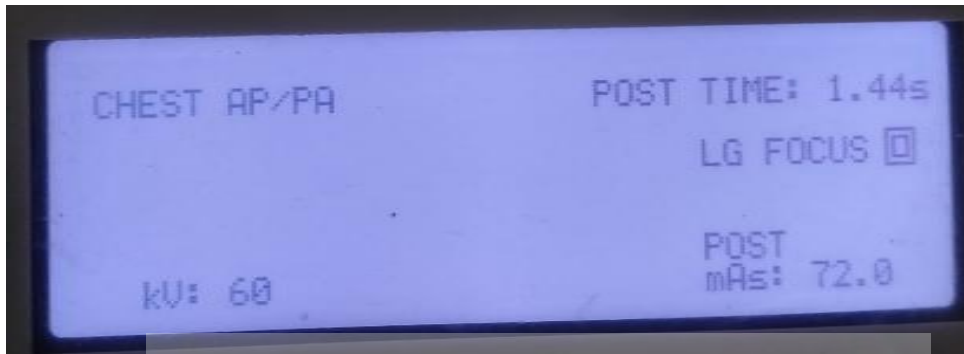
Kontrol Panel Pesawat Mobile X-Ray Pada Setting 52 mAs



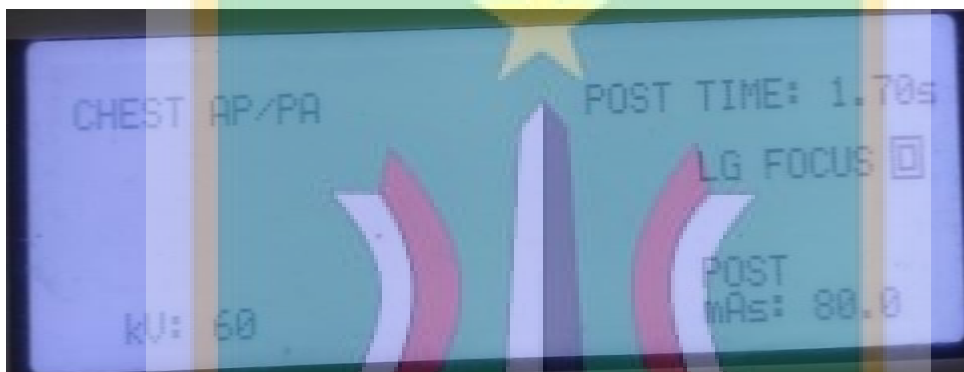
Kontrol Panel Pesawat Mobile X-Ray Pada Setting 64 mAs



Kontrol Panel Pesawat Mobile X-Ray Pada Setting 72 mAs



Kontrol Panel Pesawat Mobile X-Ray Pada Setting 80 mAs



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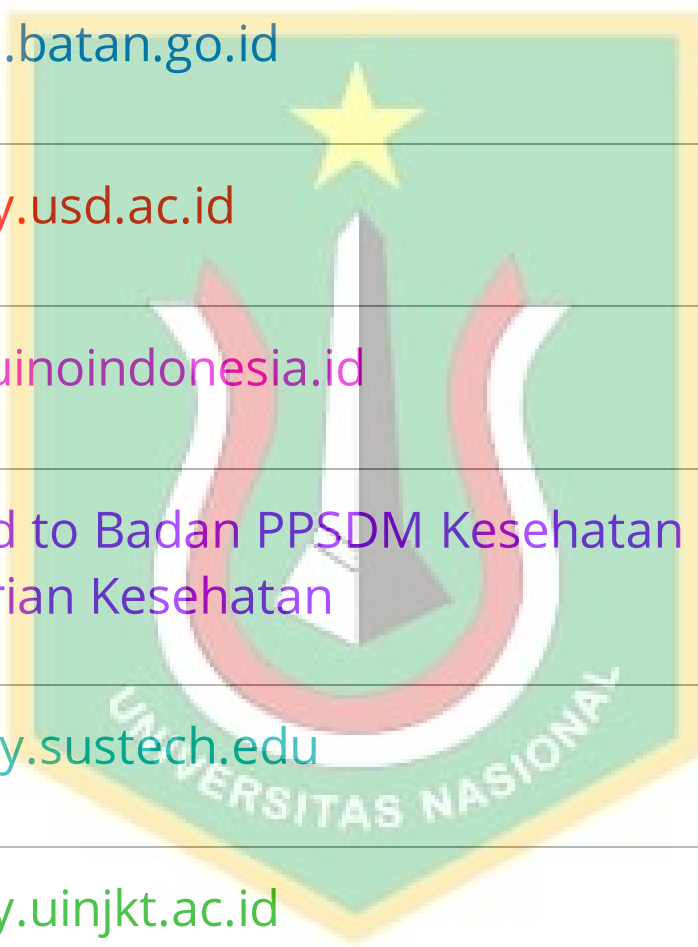
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