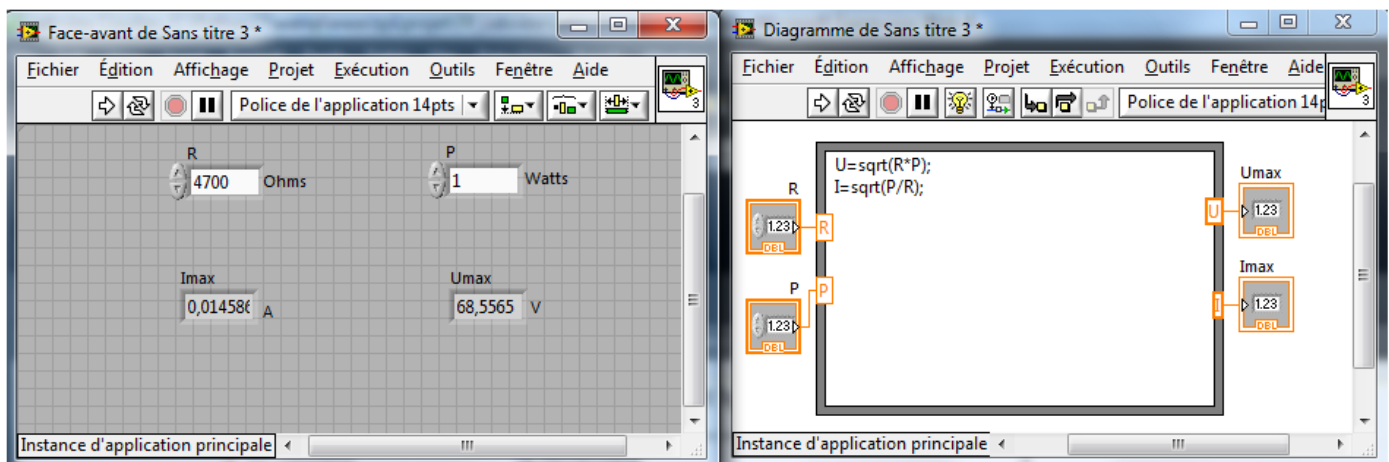


## Applications sur Chapitre I : Prise en main de LabVIEW

### Exercice 01 :

Réaliser un VI qui permet d'indiquer la valeur d'une résistance en ohm et la puissance maximale qu'elle peut dissiper, typiquement dans le labo : 0,25 W, 0,5 W 1W, 2 W. Le programme calcule l'intensité maximale et la tension maximale supportée par cette résistance.

La face avant et le Diagramme possibles sont :



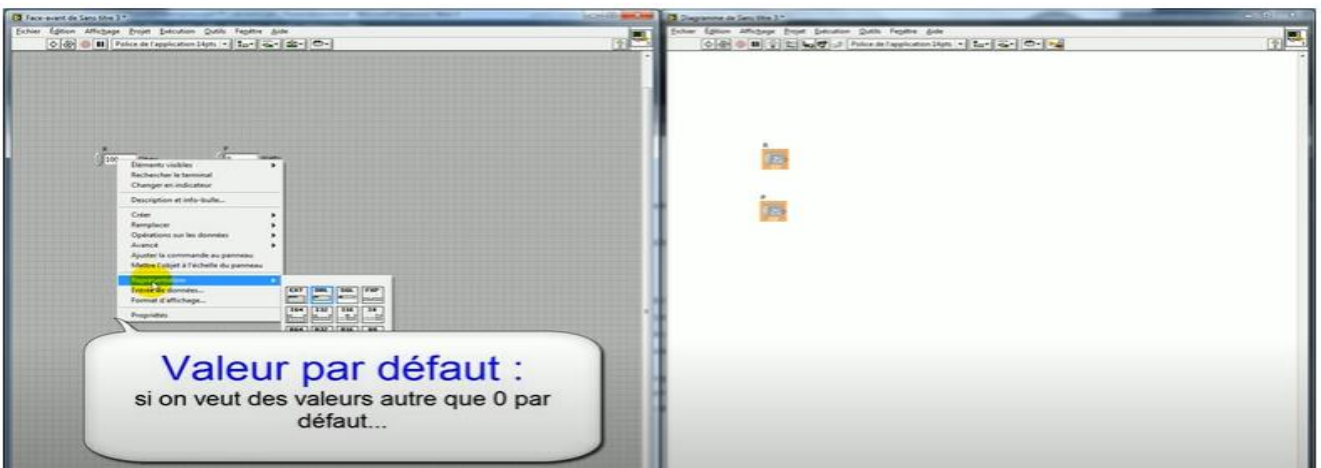
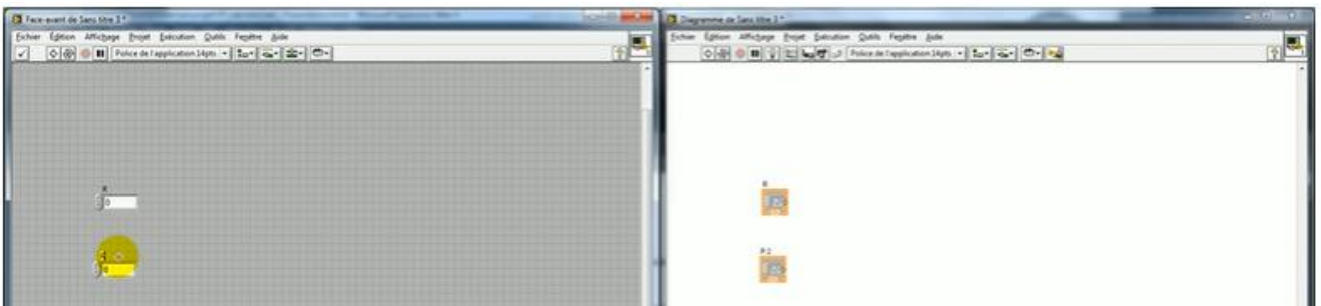
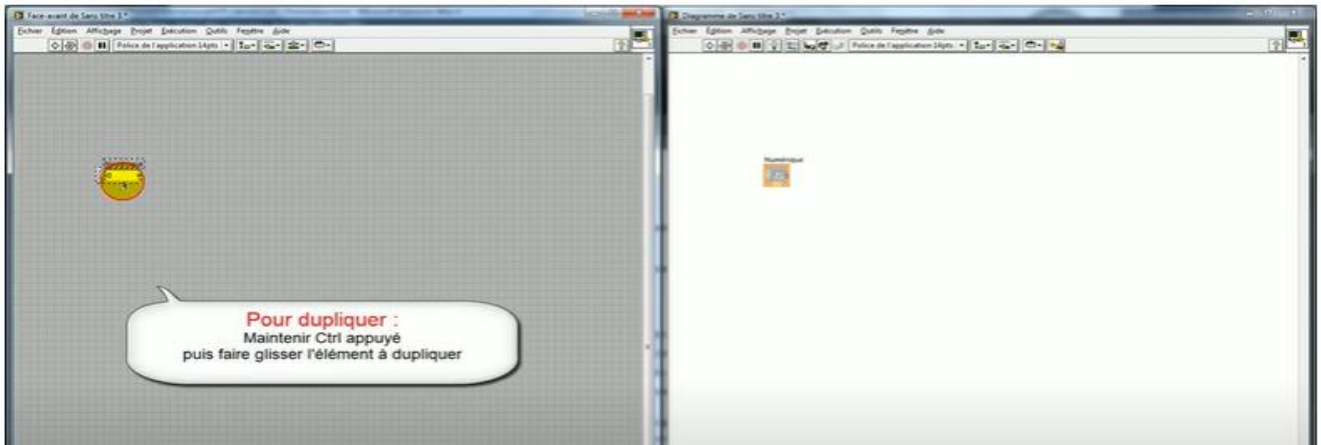
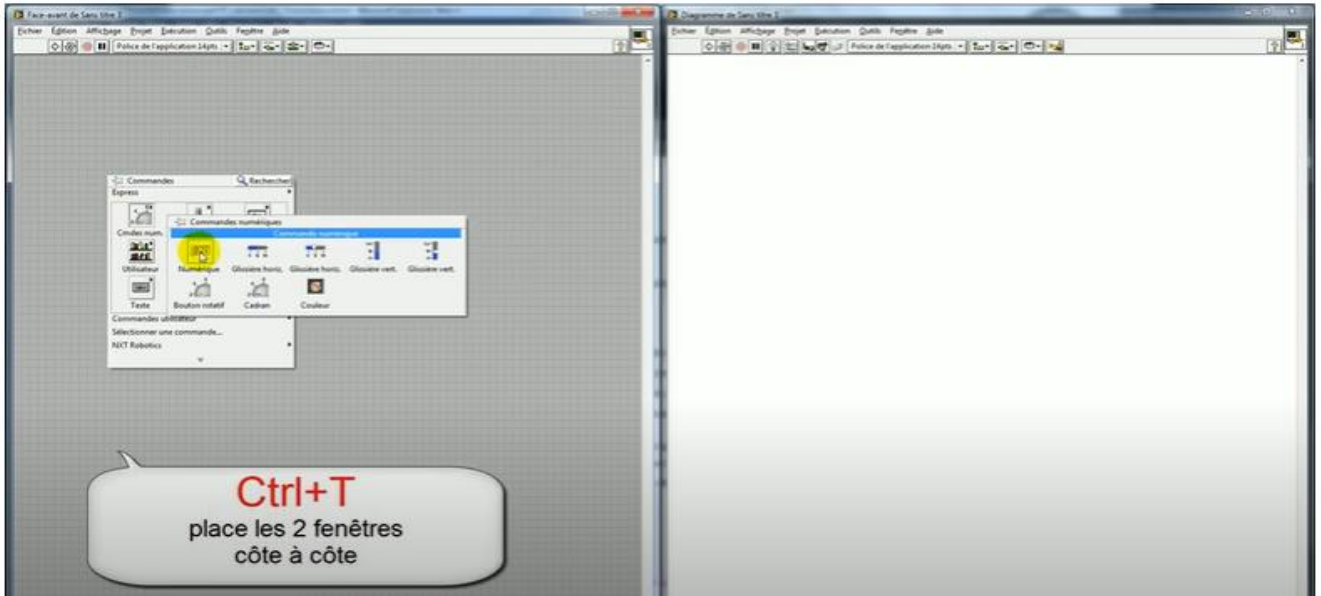
**La face avant d'un programme** est l'interface utilisateur du VI contenant des entrées (les commandes) et des sorties (les indicateurs) du programme. Les commandes et indicateurs peuvent être des afficheurs numériques, des commutateurs booléens, des jauges, des boutons poussoirs et des graphes.

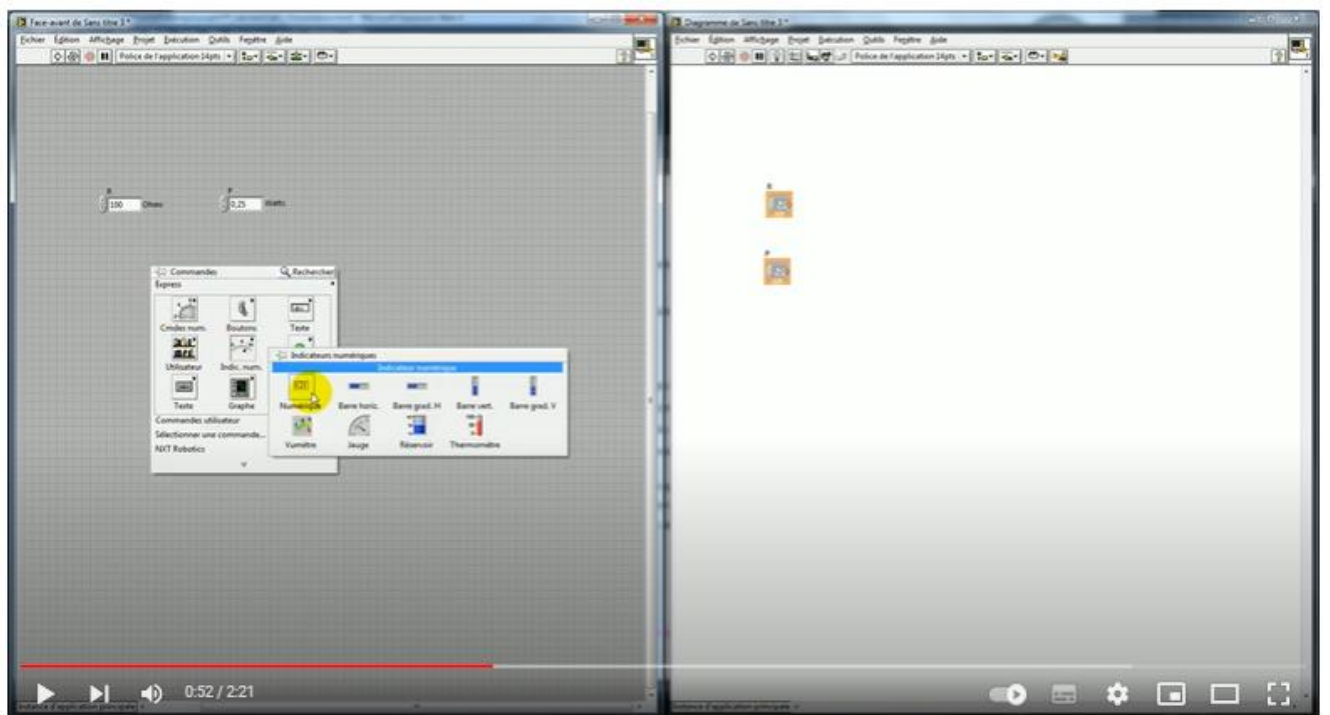
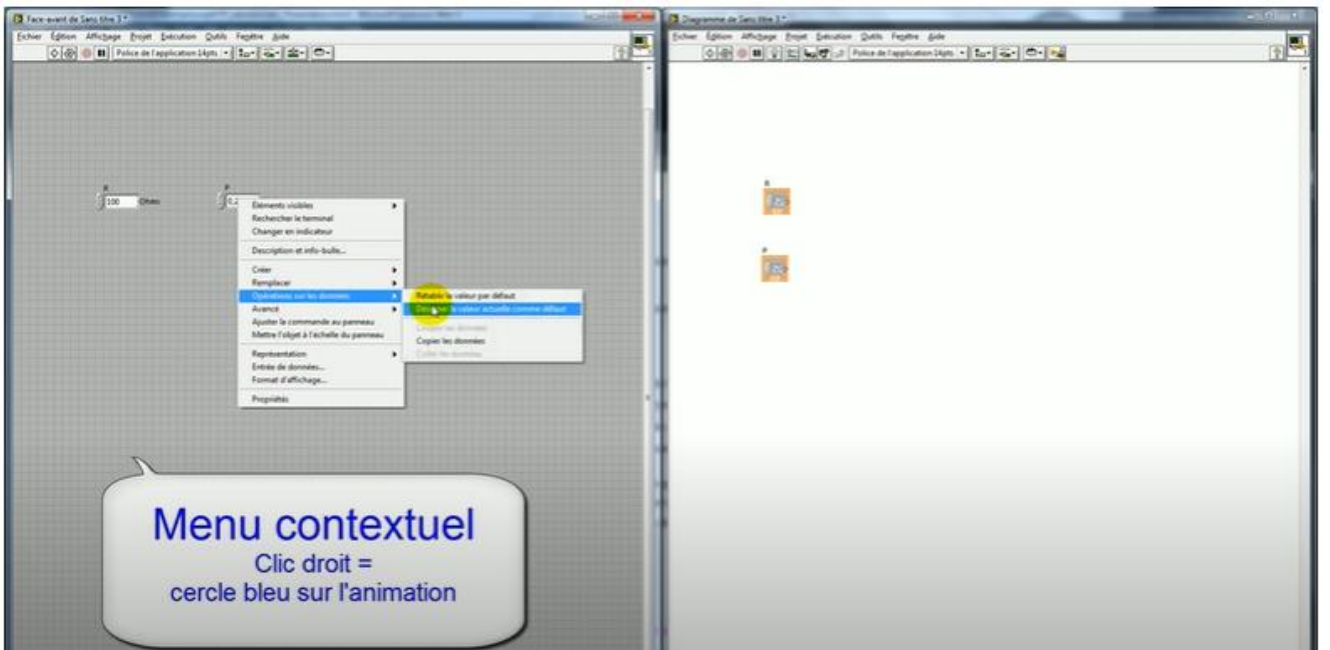
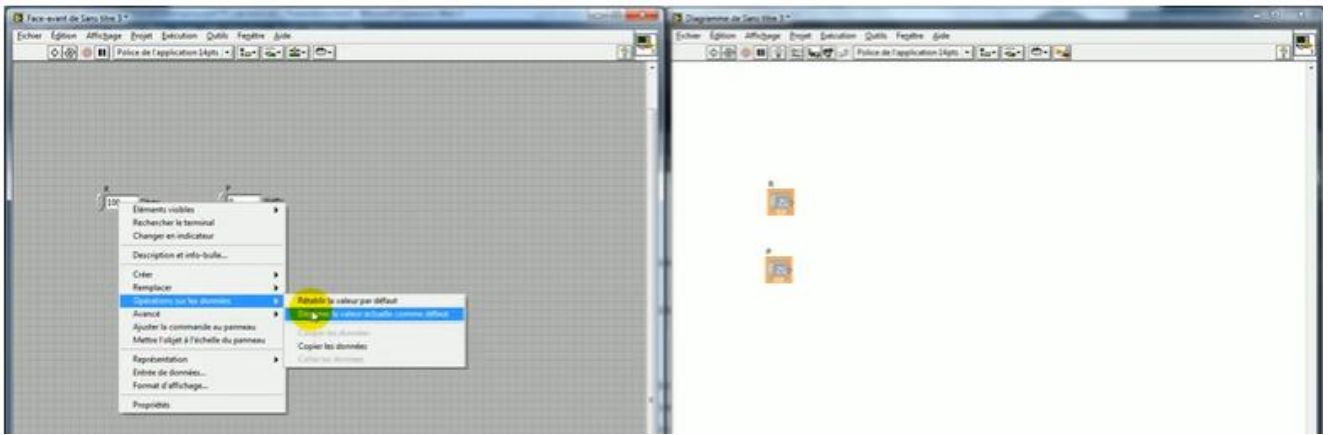
**Le diagramme** contient le code graphique du programme LabVIEW (VI). La programmation est graphique selon une logique de flux de données.

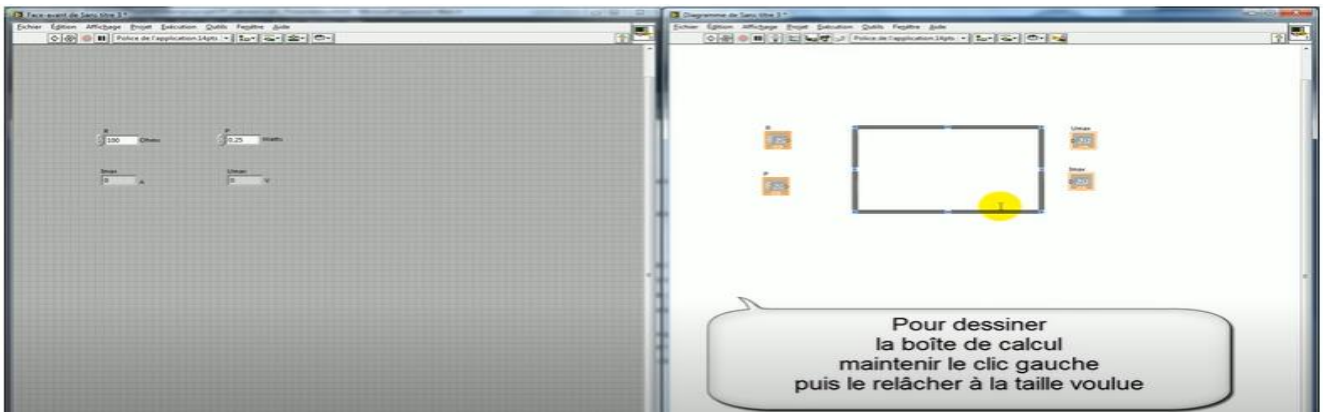
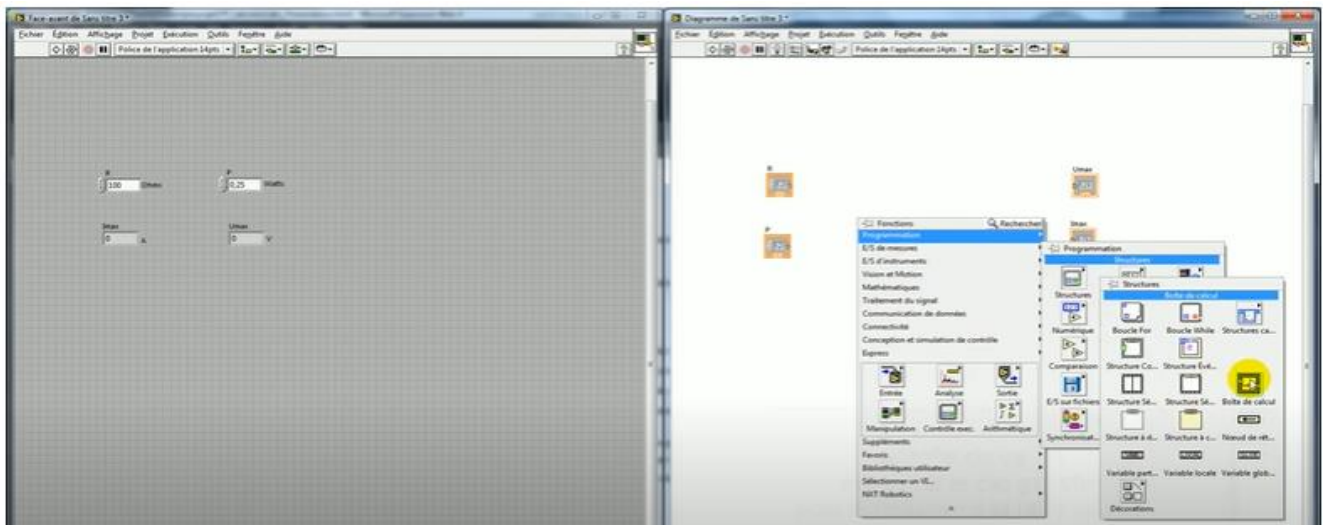
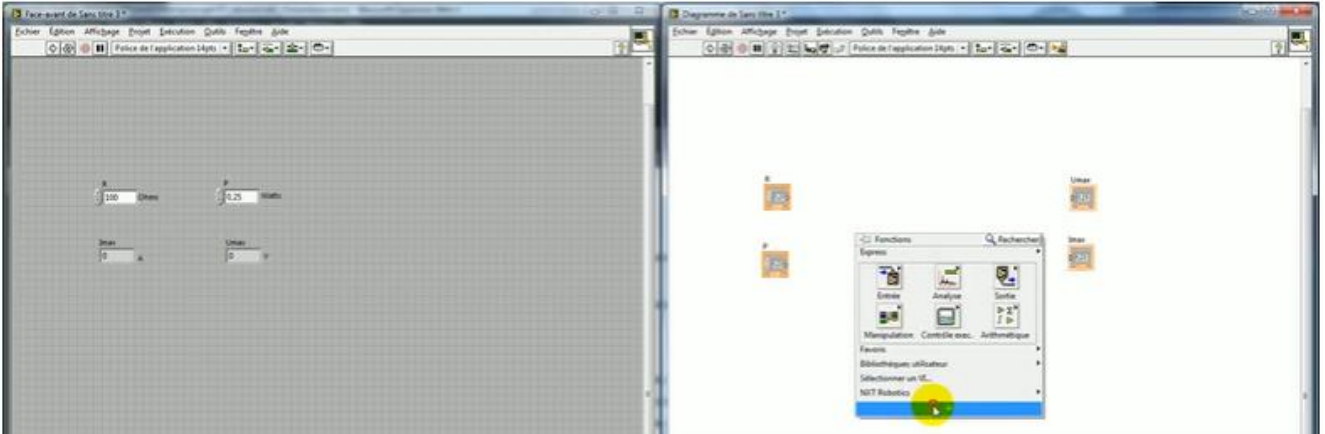
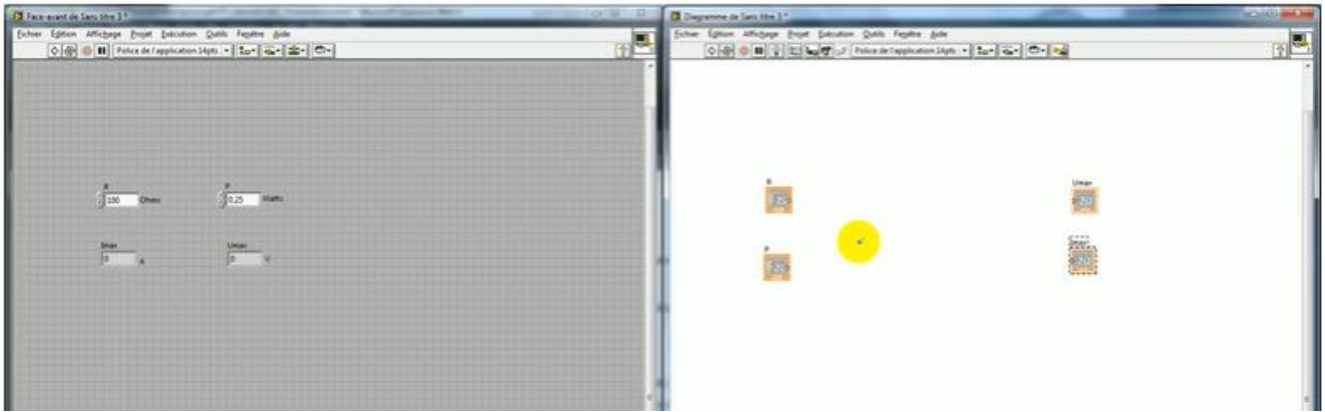
La boîte de calcul permet d'exécuter des scripts en langage C (même syntaxe que l'Arduino)

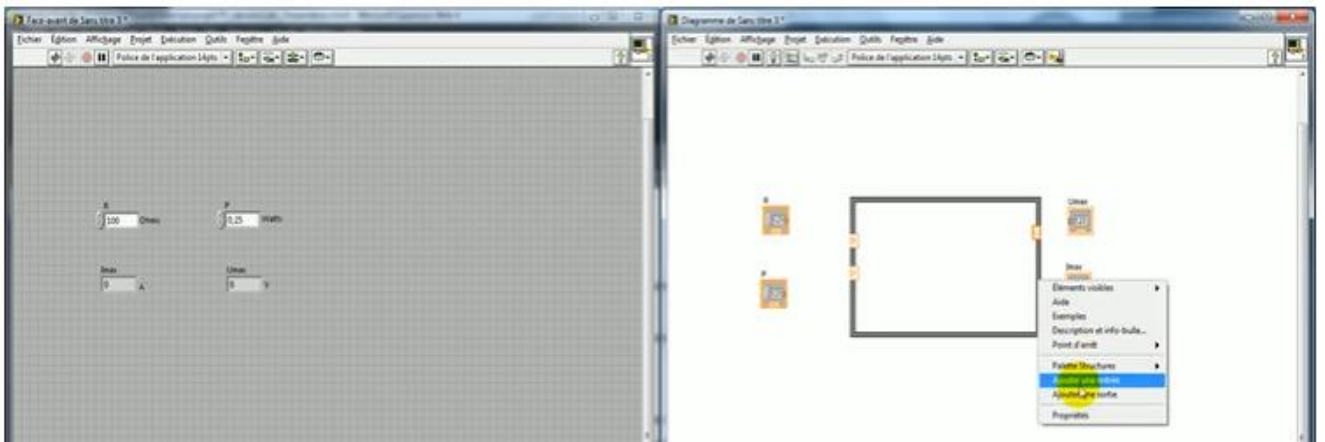
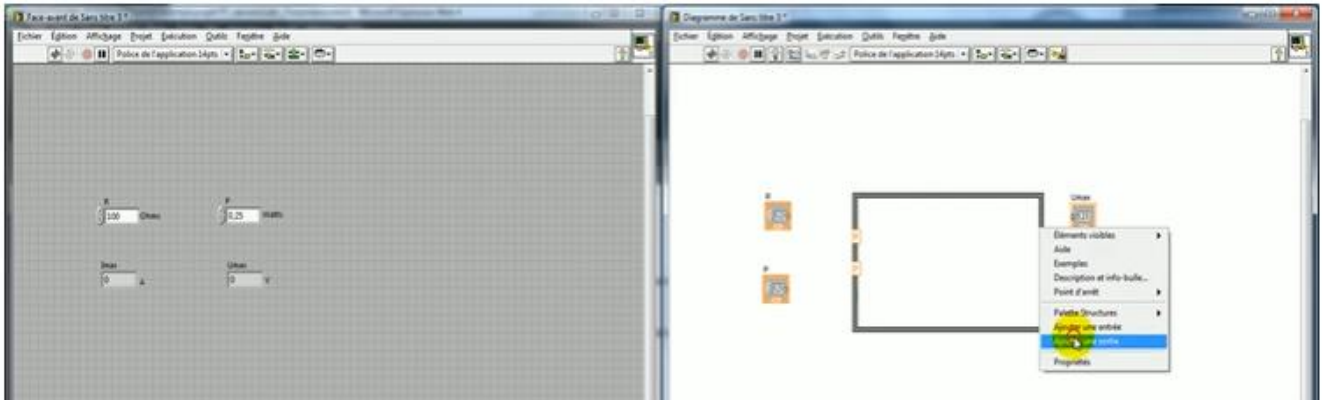
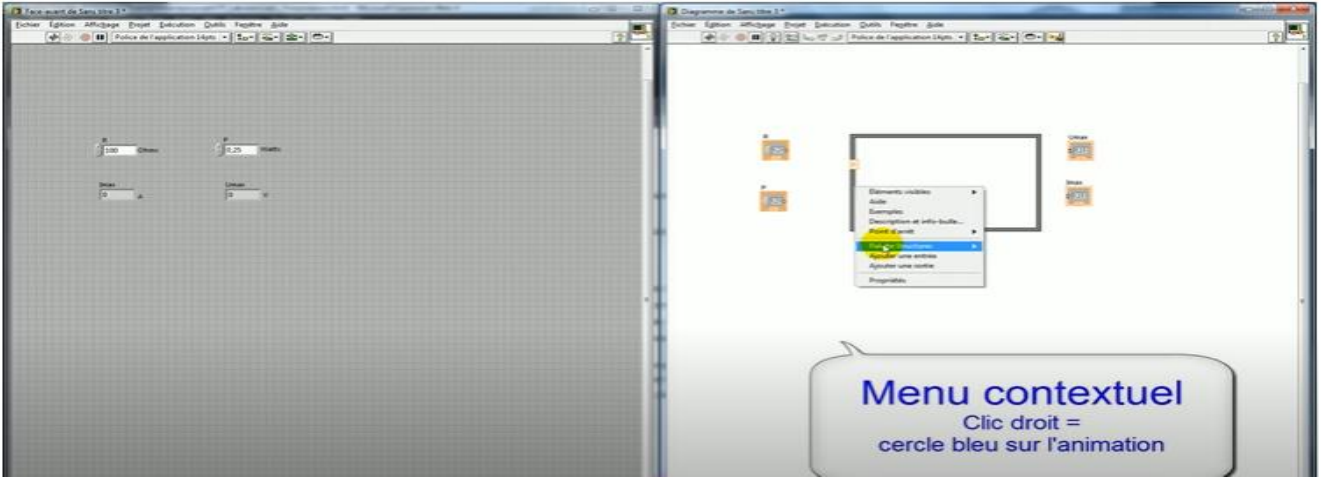
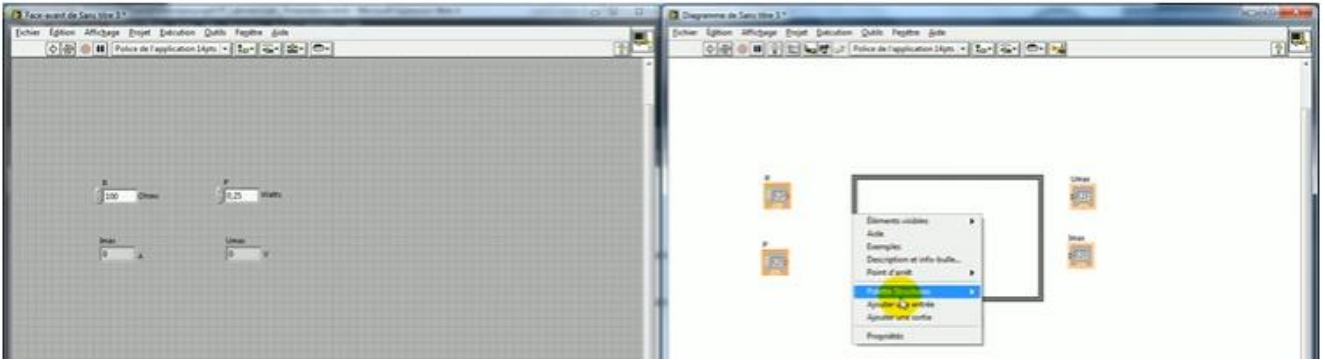


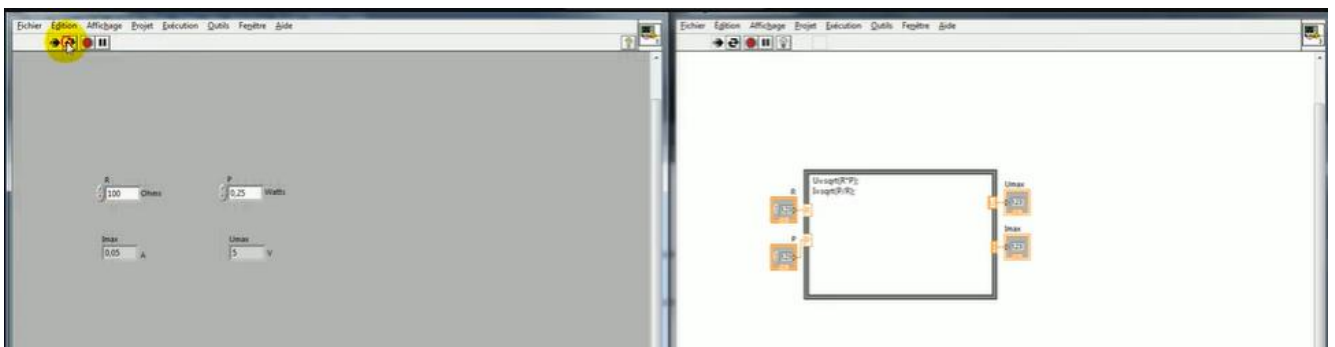
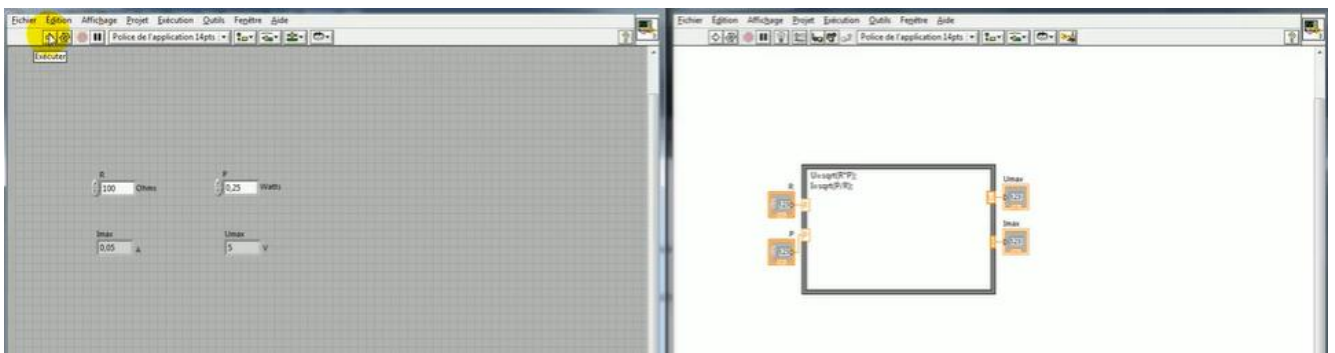
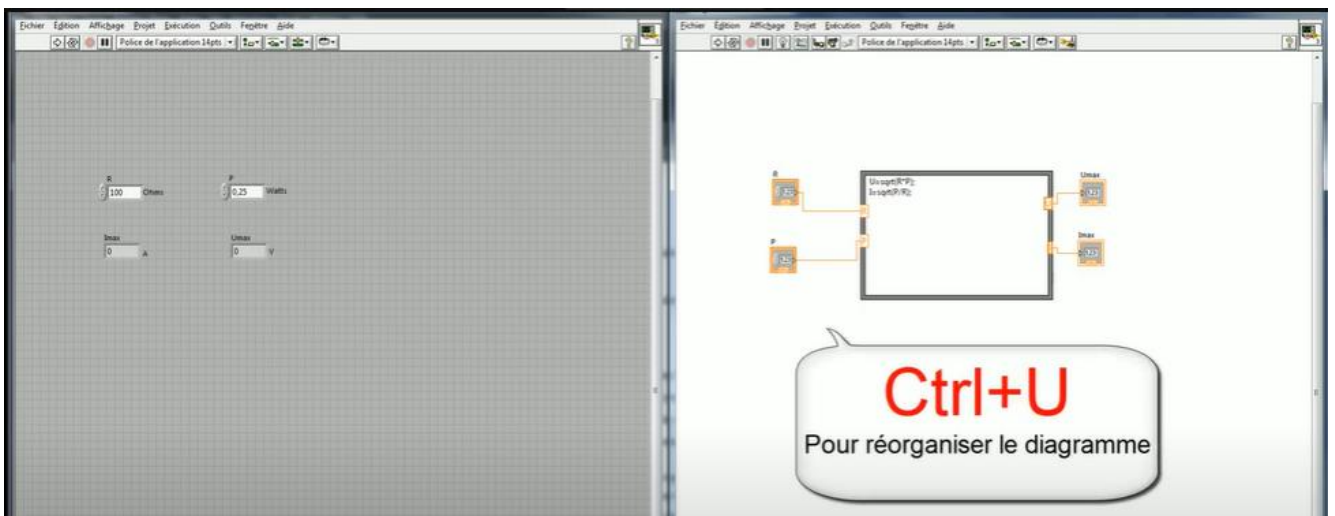
✓ Solution

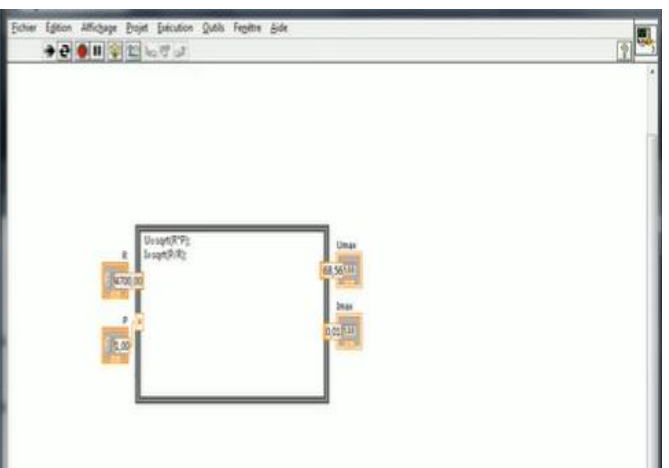
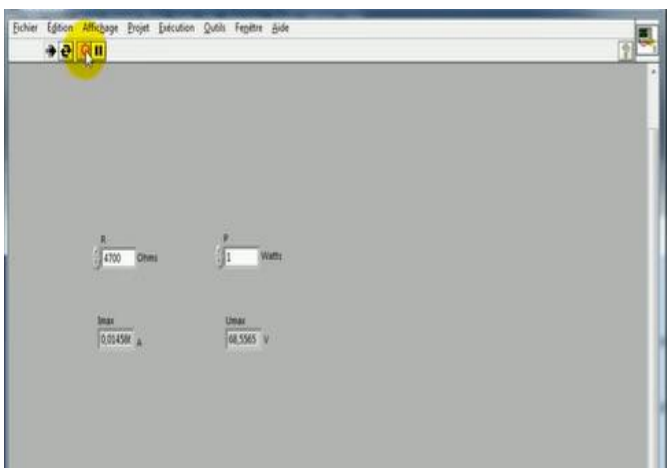
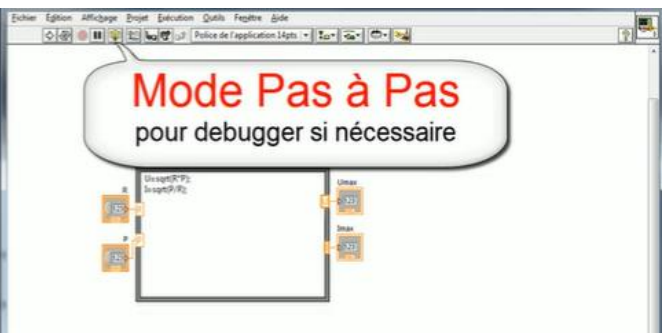
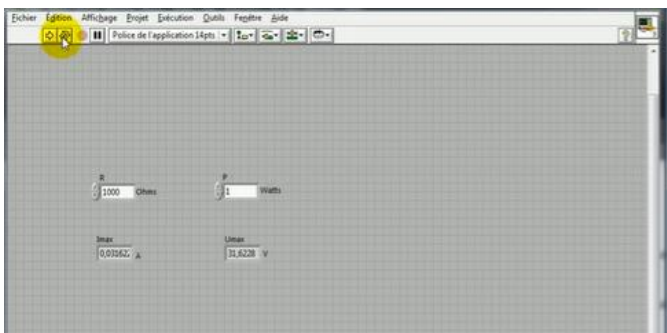
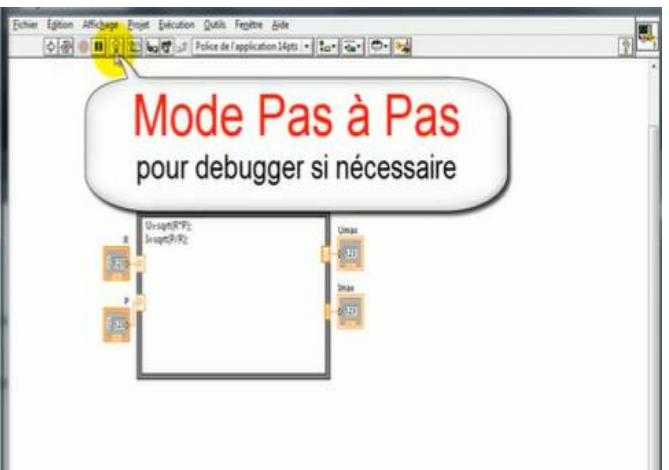
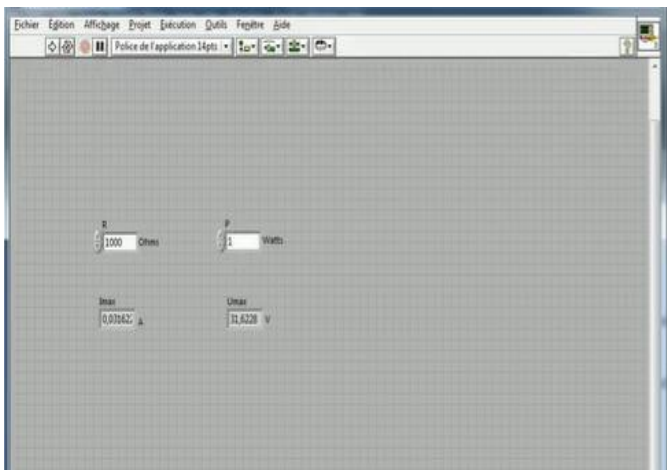
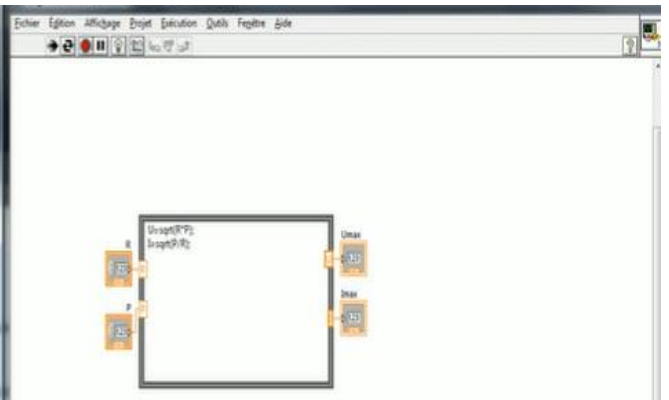
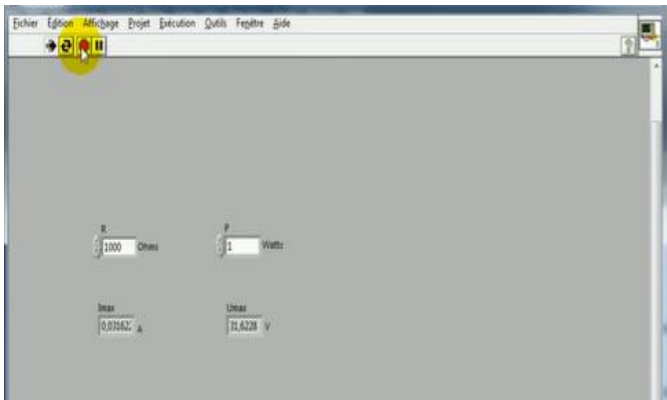










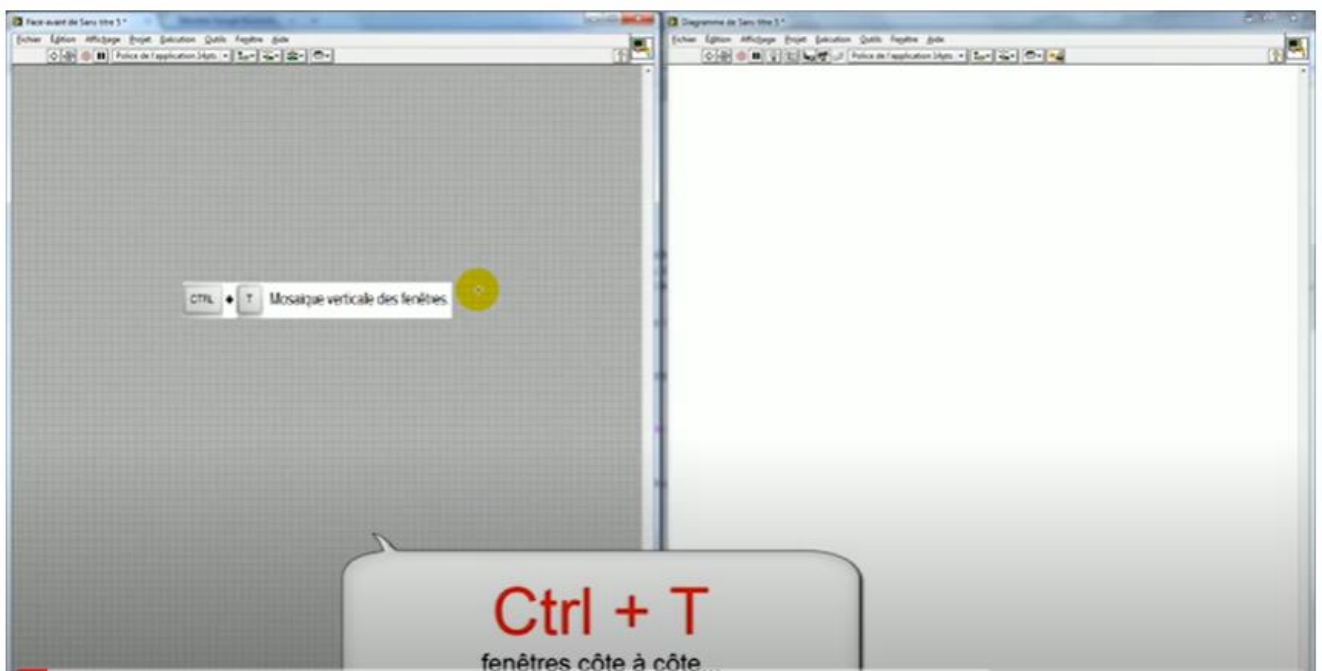
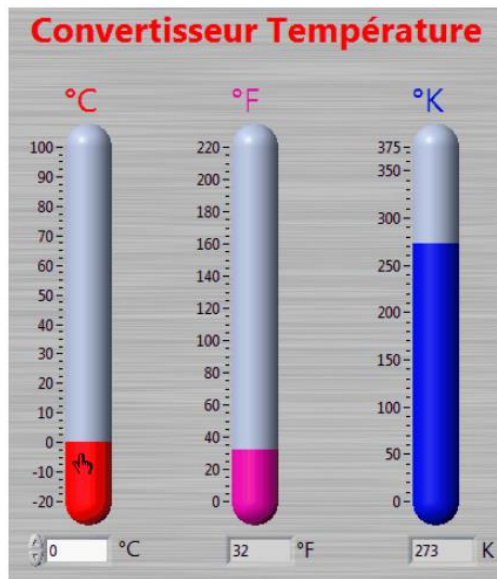


## Exercice 02 :

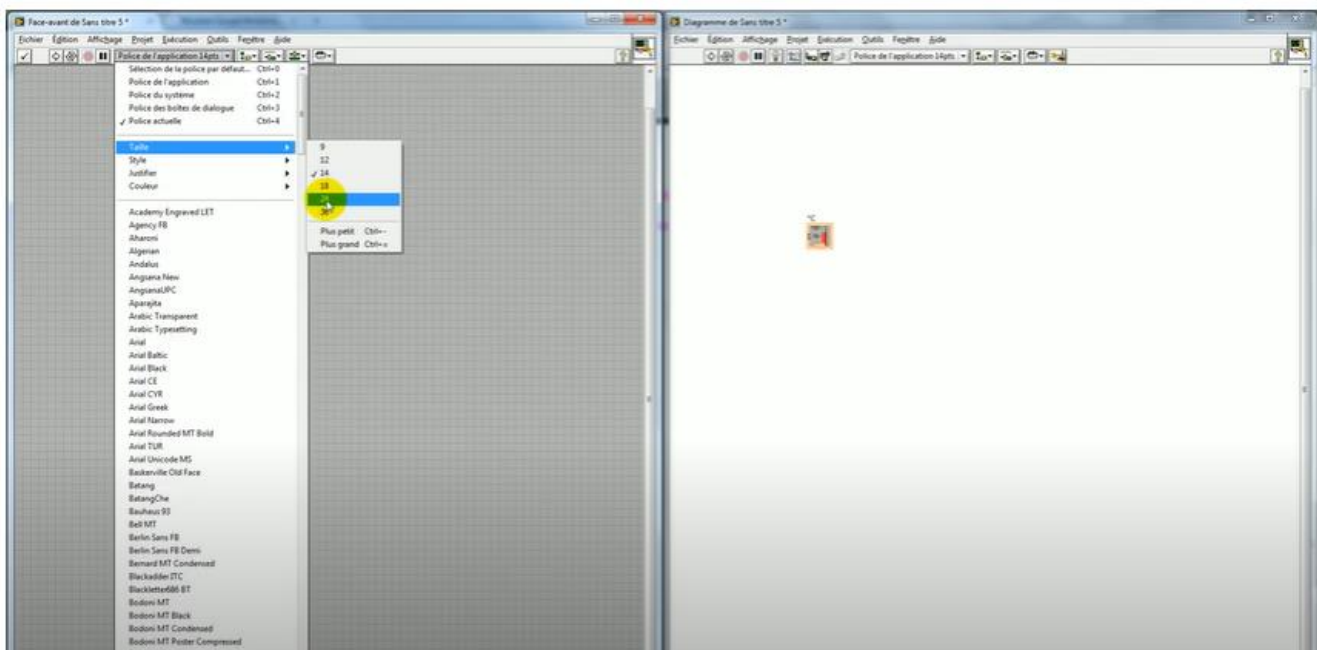
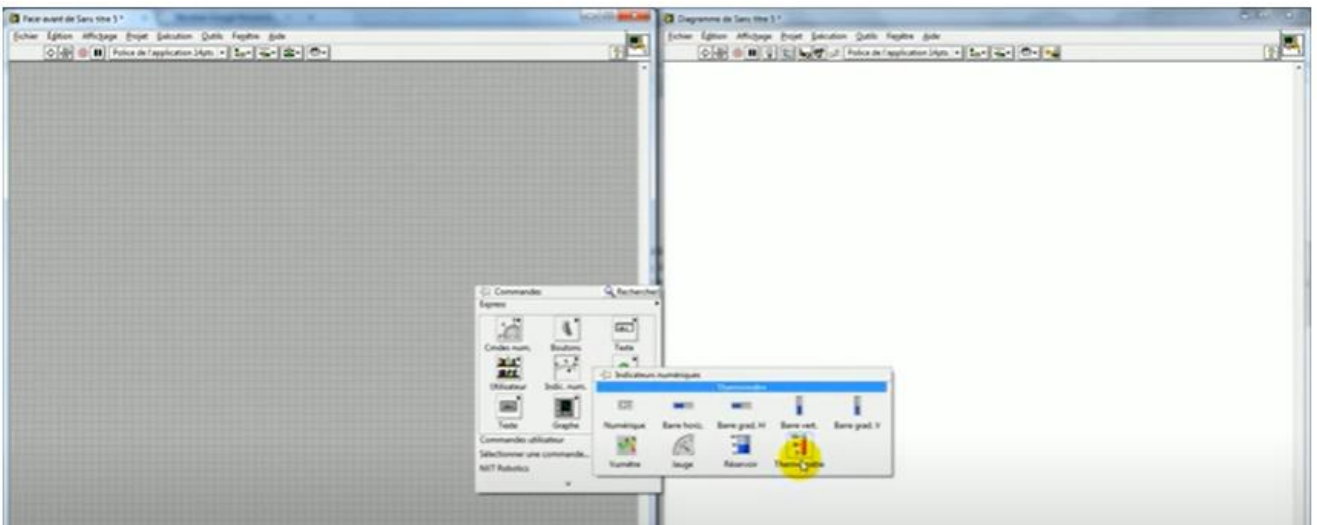
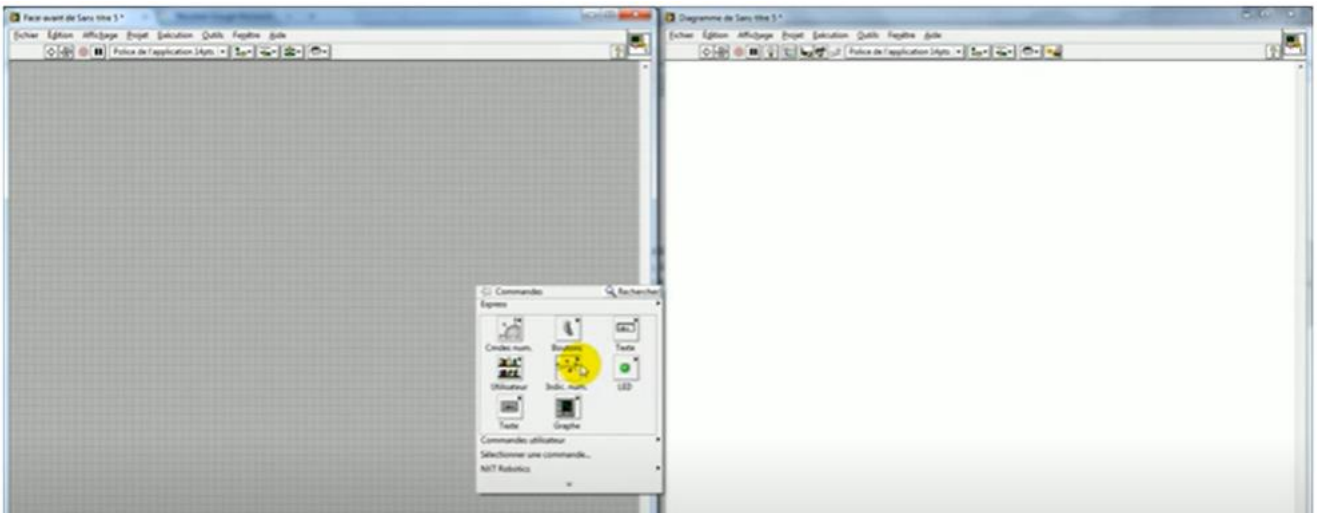
Réaliser un VI qui permet d'effectuer une conversion de °C en K et en °F à partir de fonctions de base de LabVIEW.

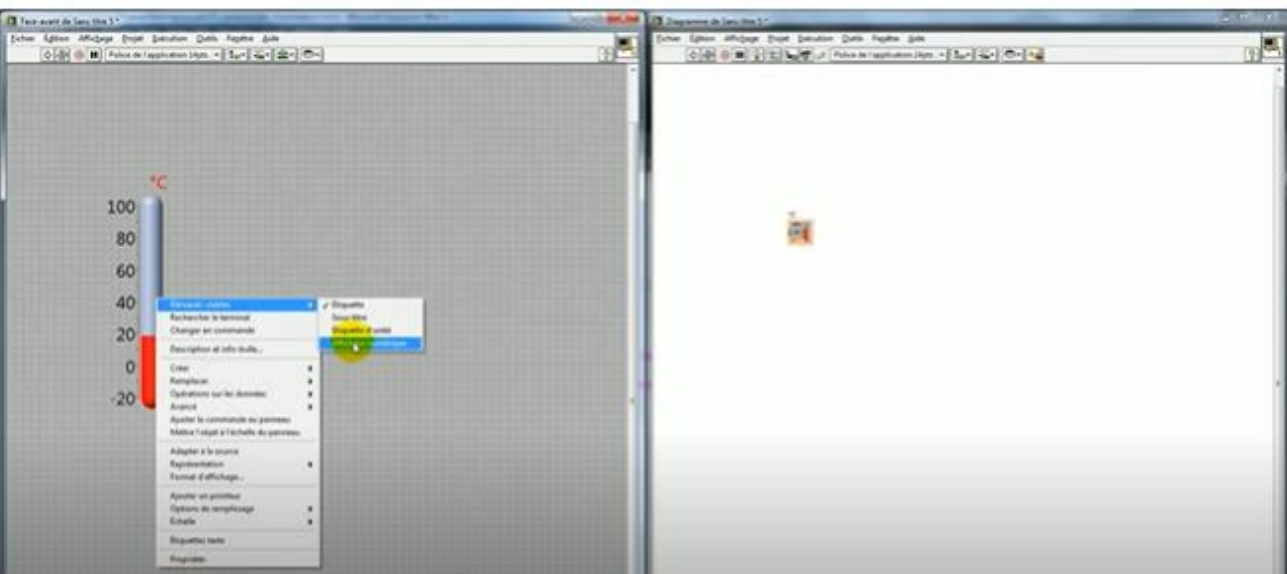
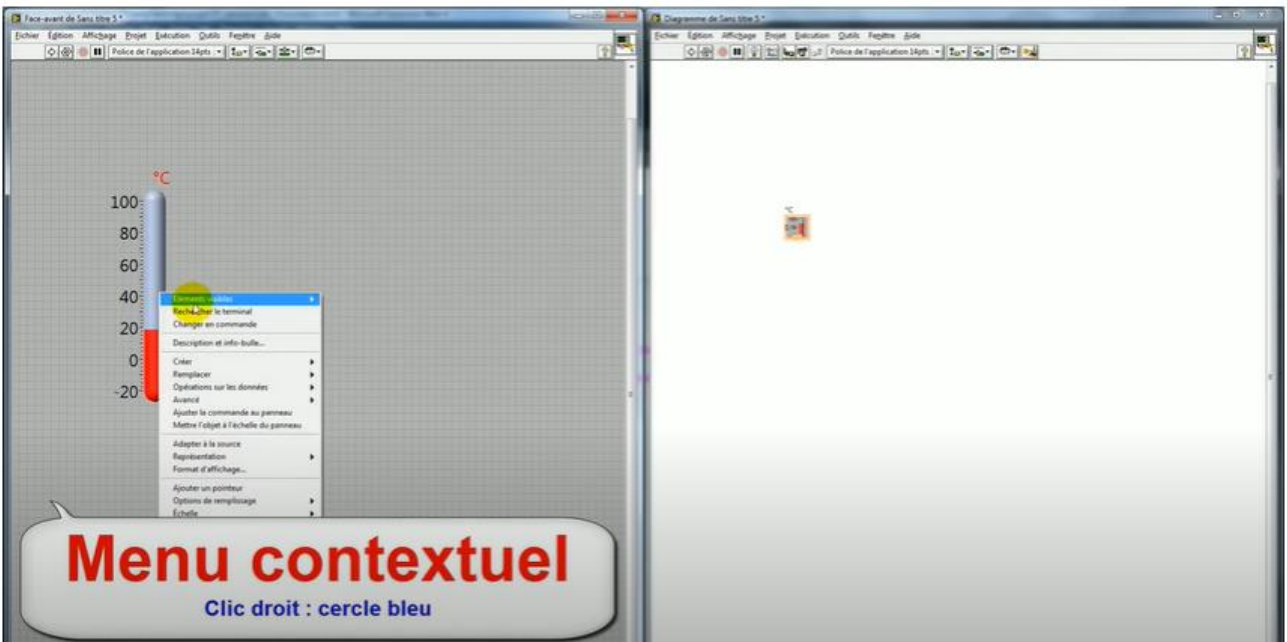
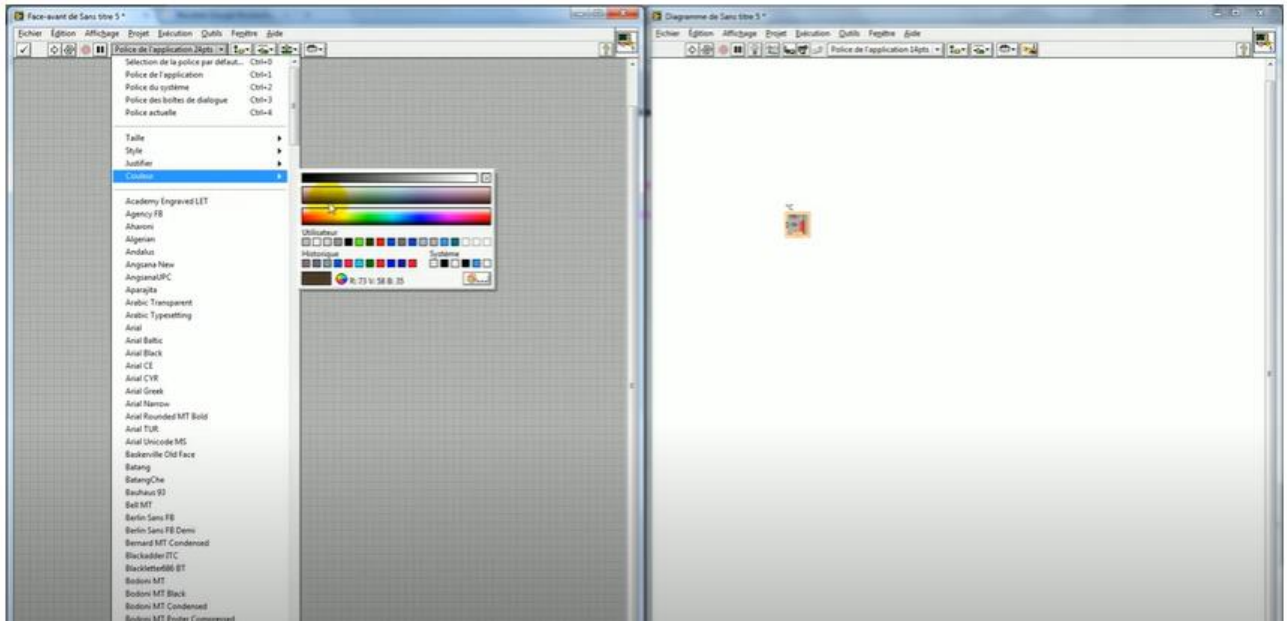
- Conversion de °C en °F :  $^{\circ}\text{F} = 9/5 * ^{\circ}\text{C} + 32$  ;
- Conversion de °C en K :  $\text{K} = ^{\circ}\text{C} + 273,15$ .

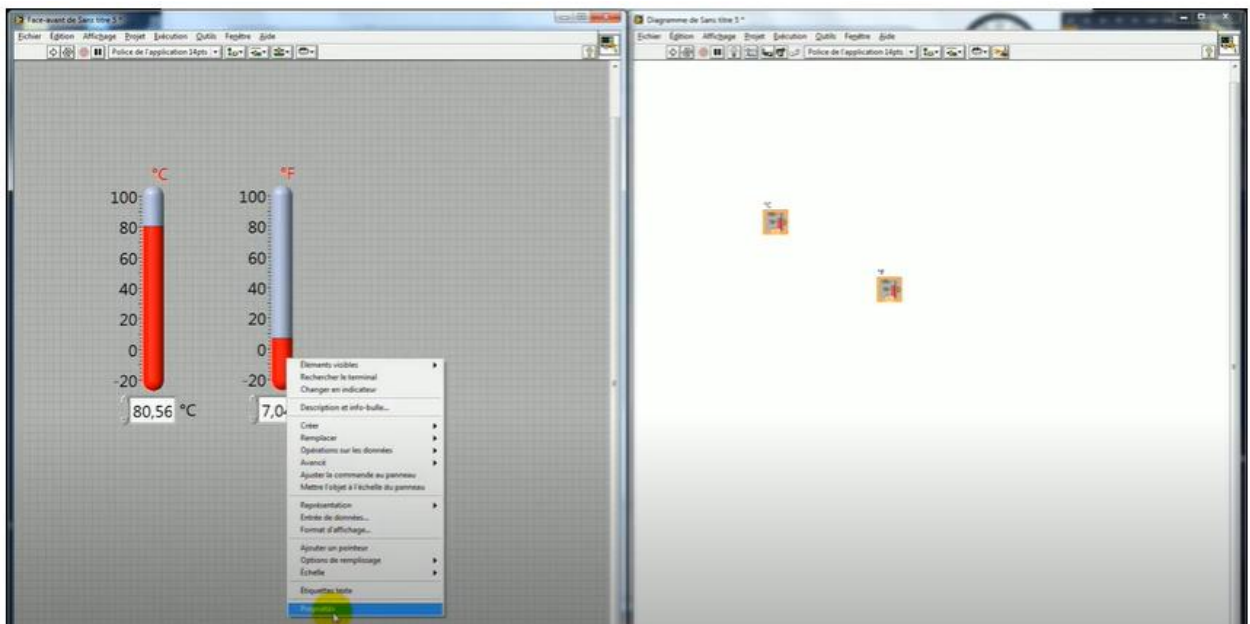
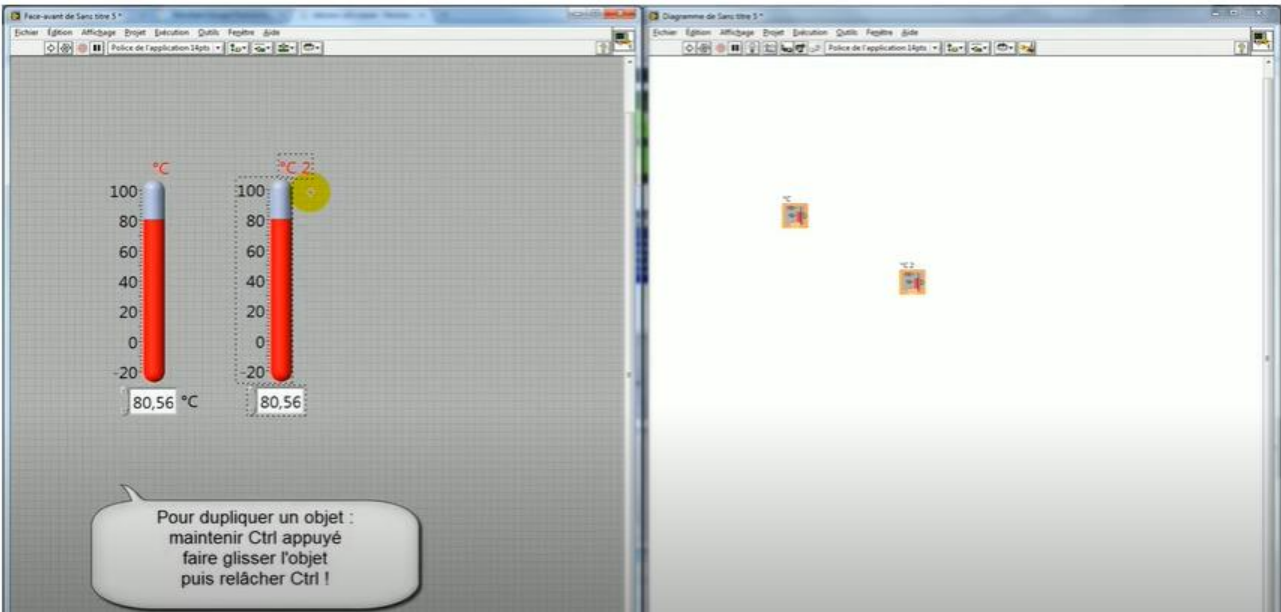
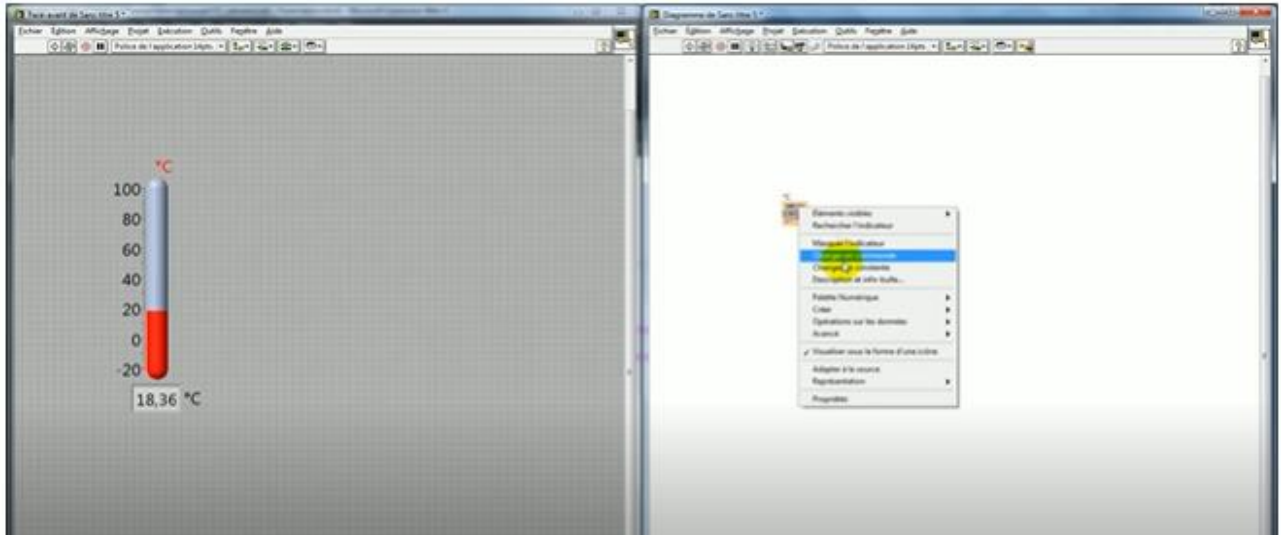
Face avant possible :

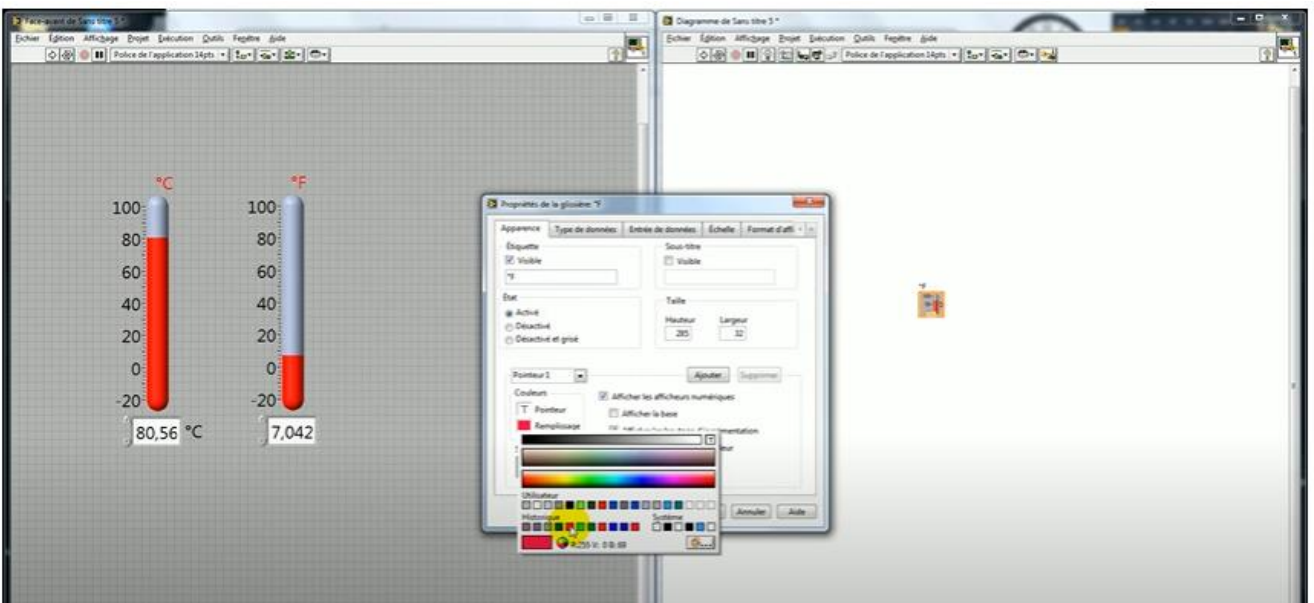
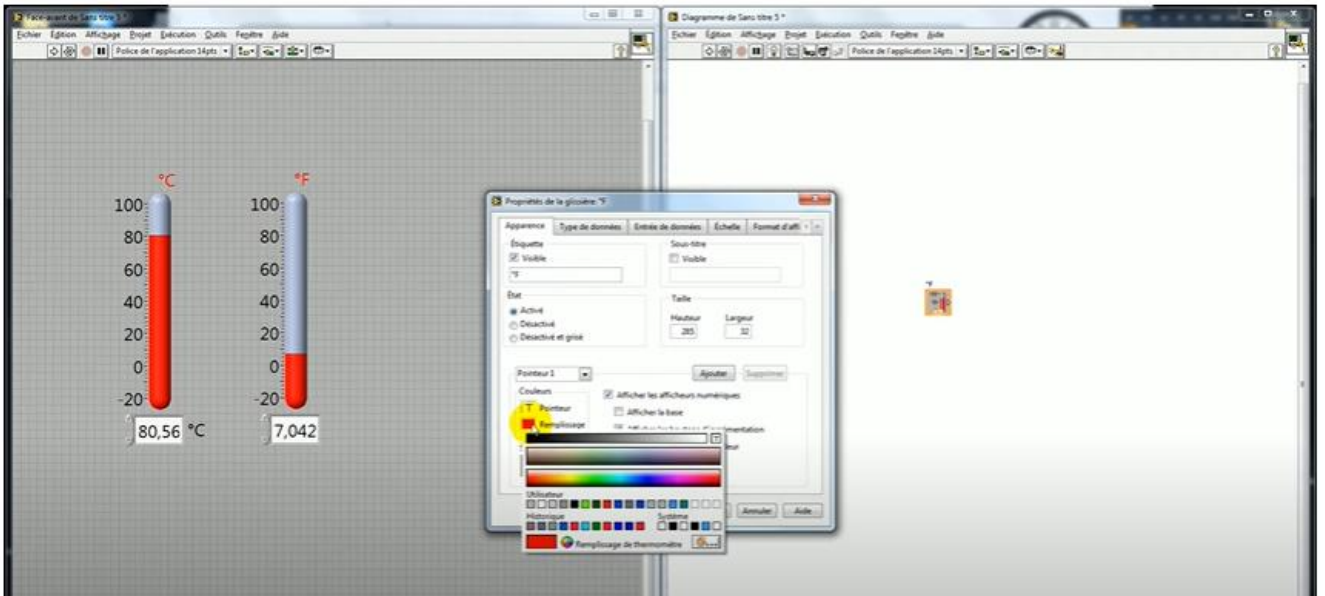
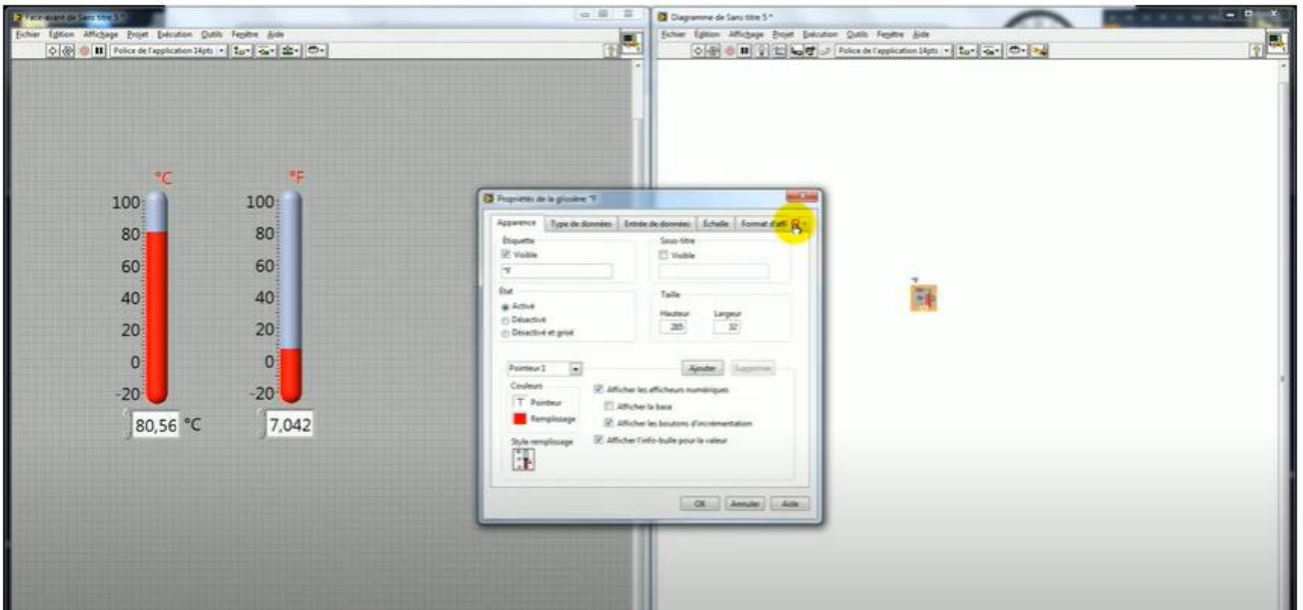


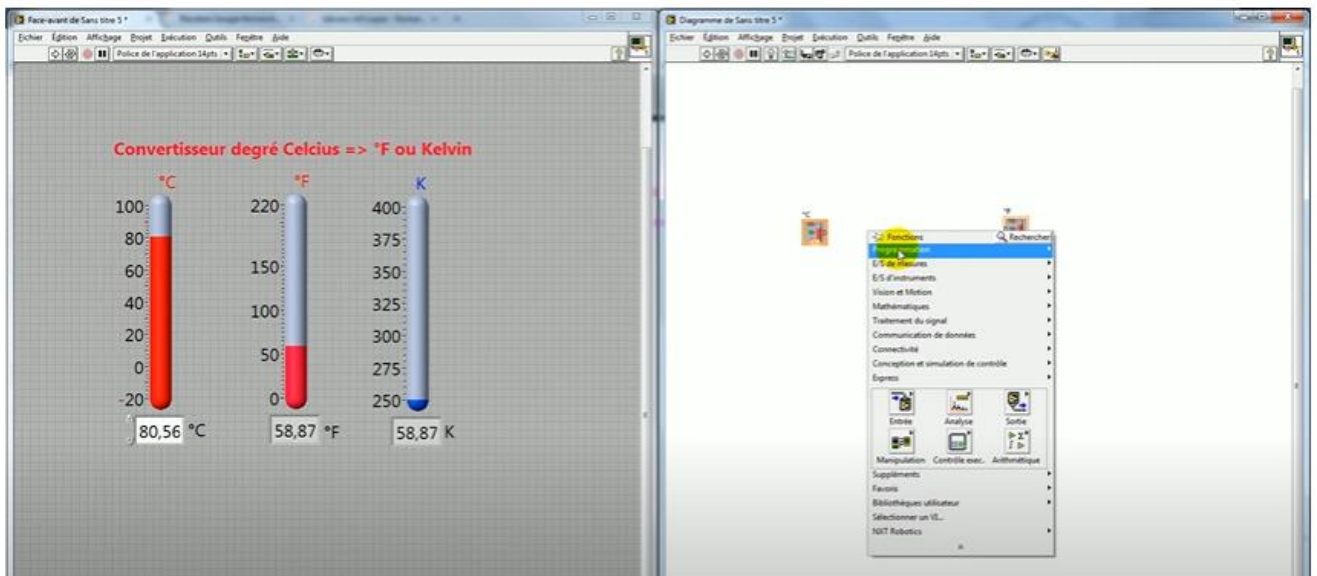
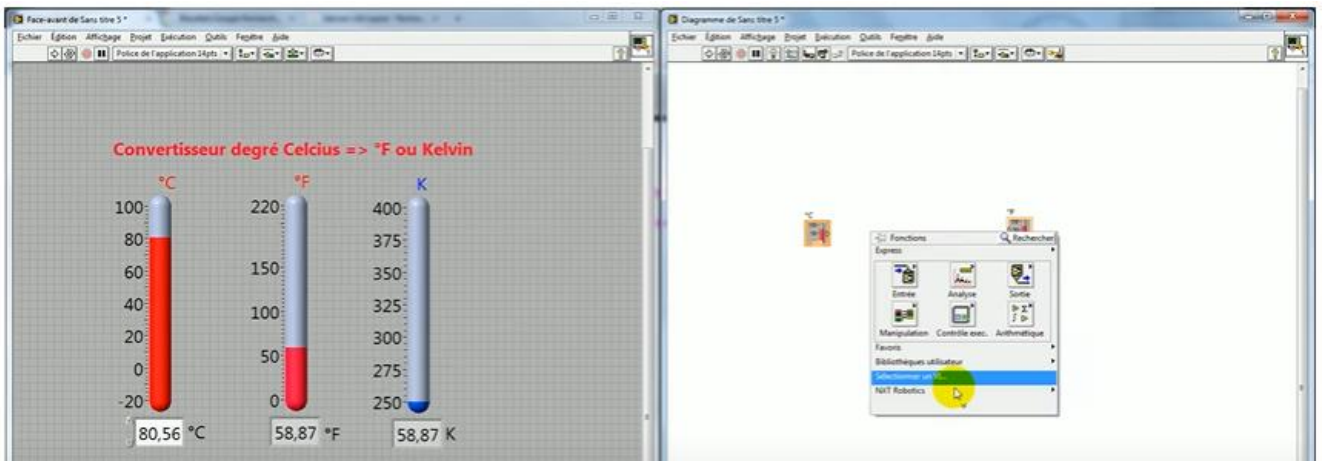
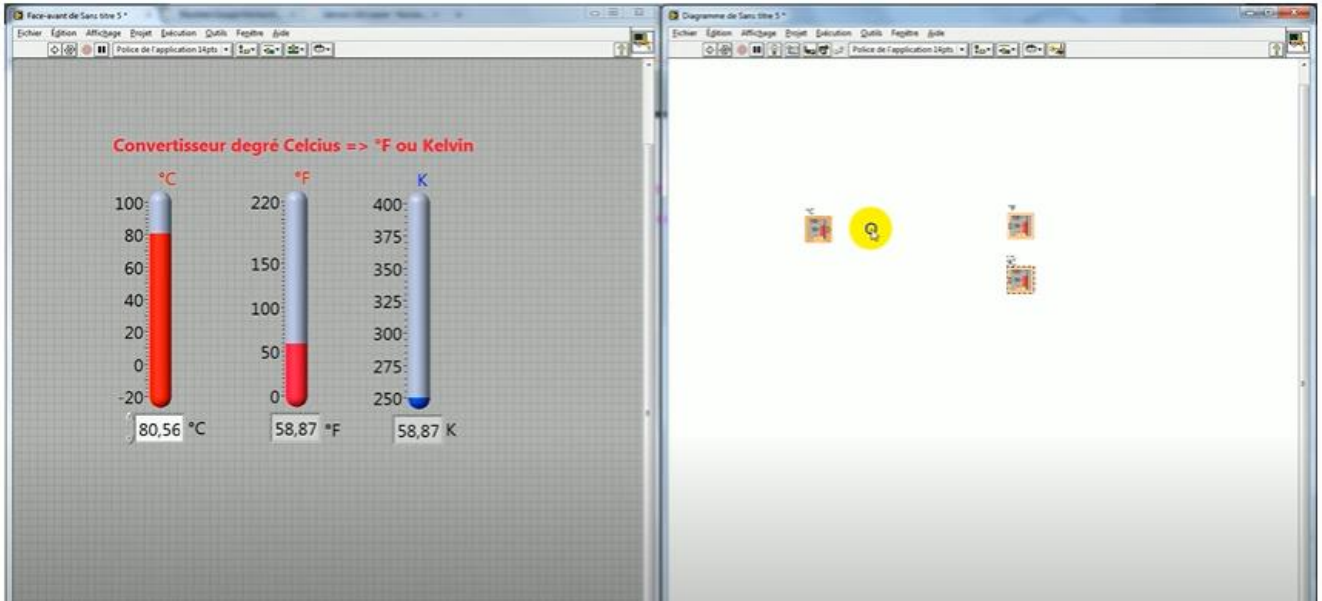


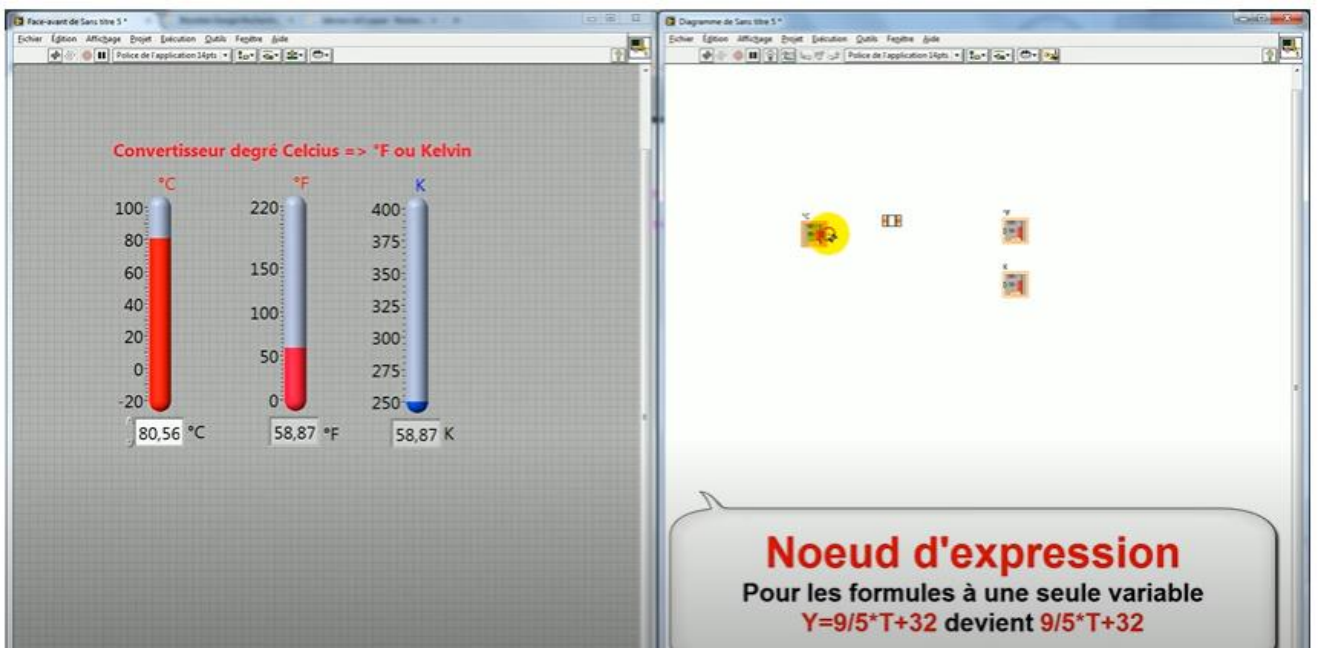
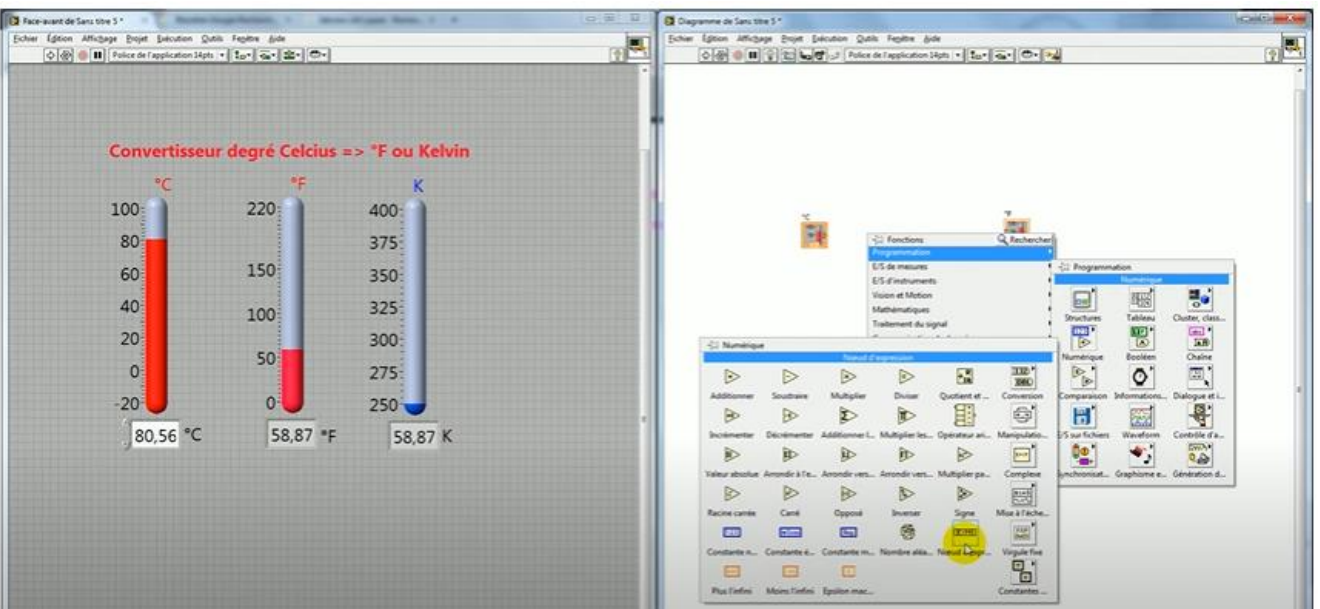
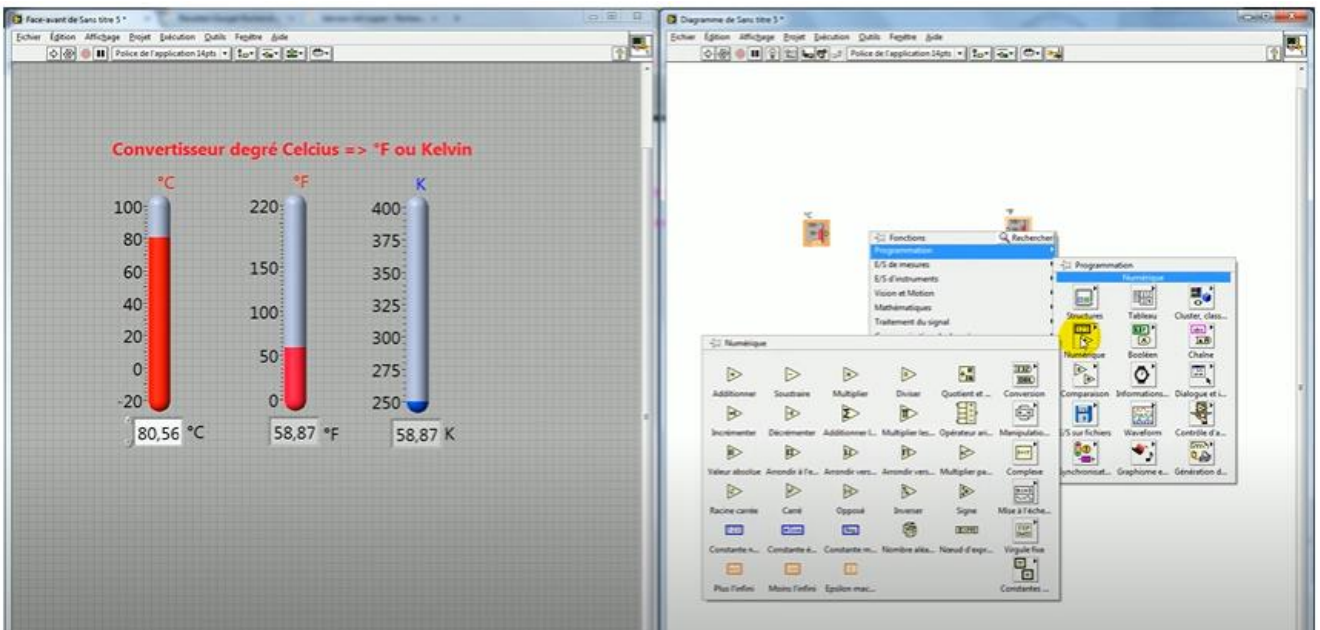


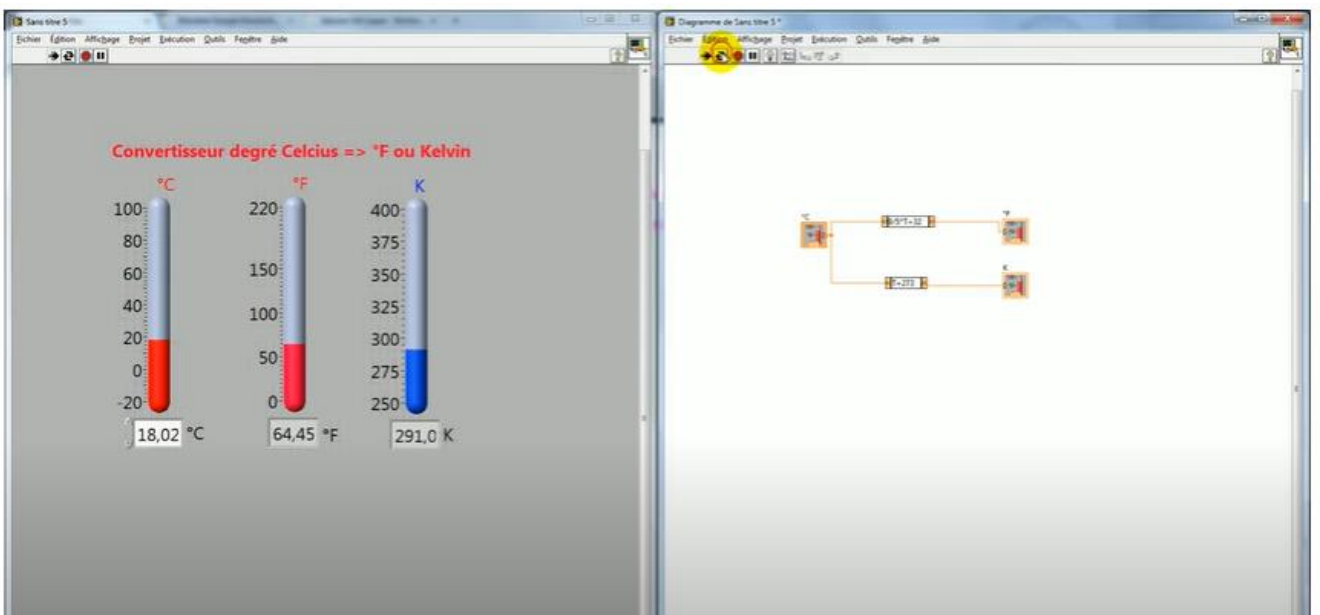
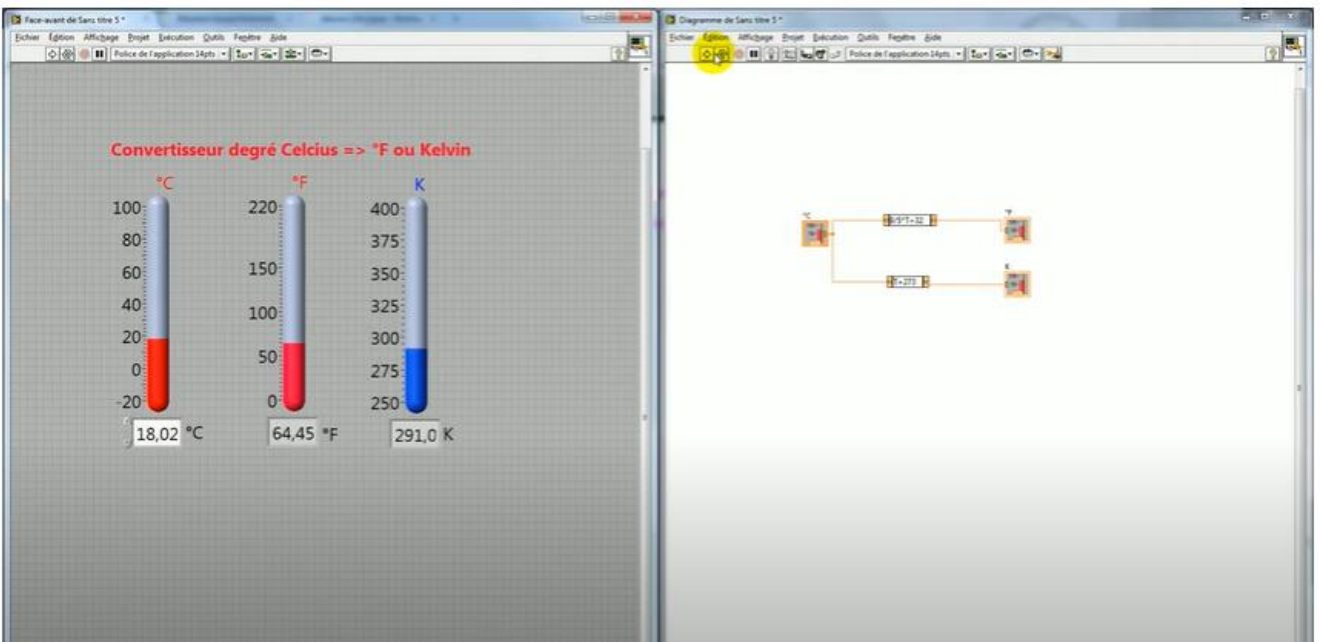
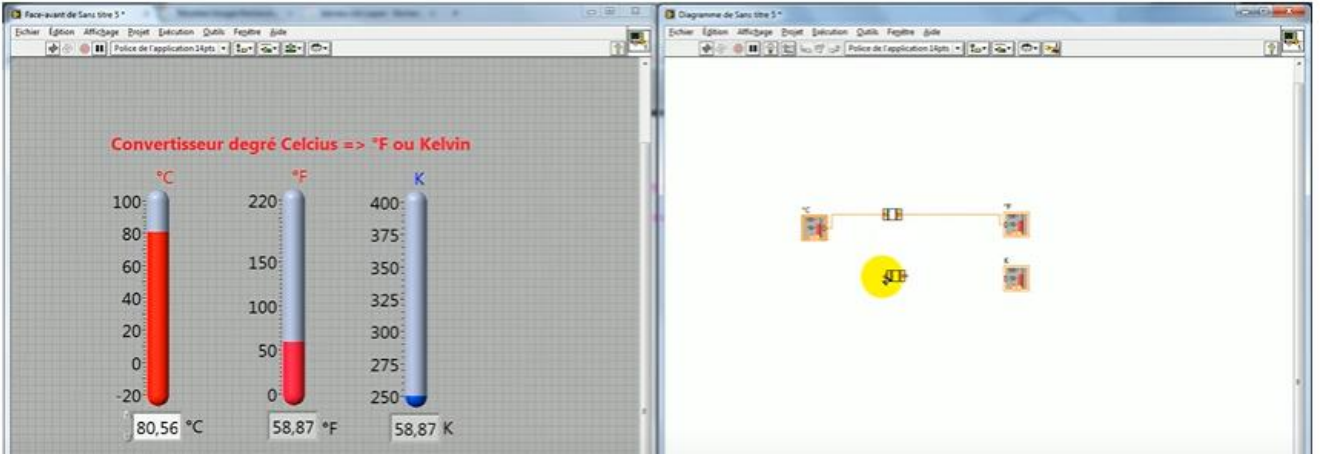


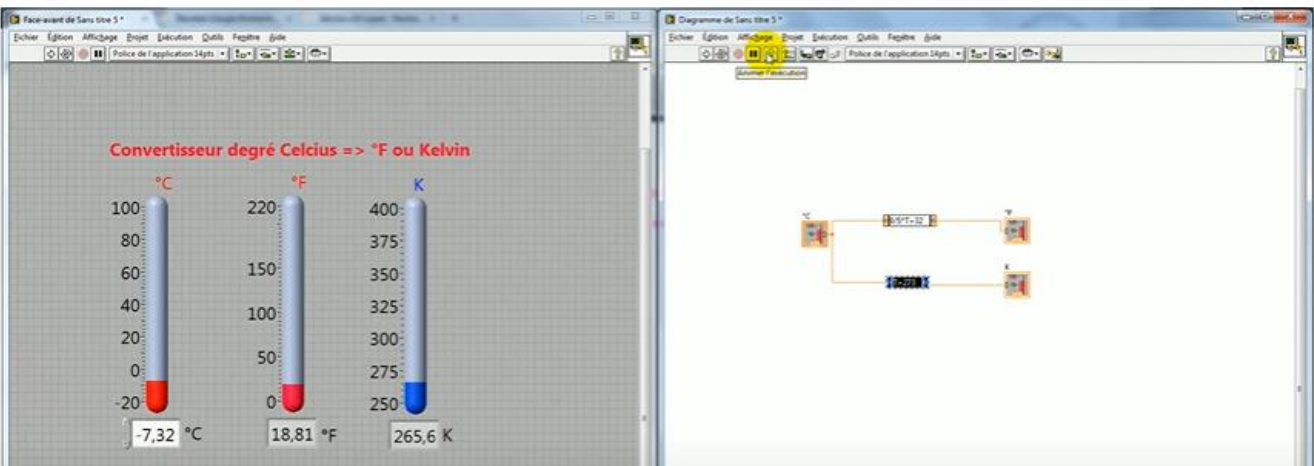
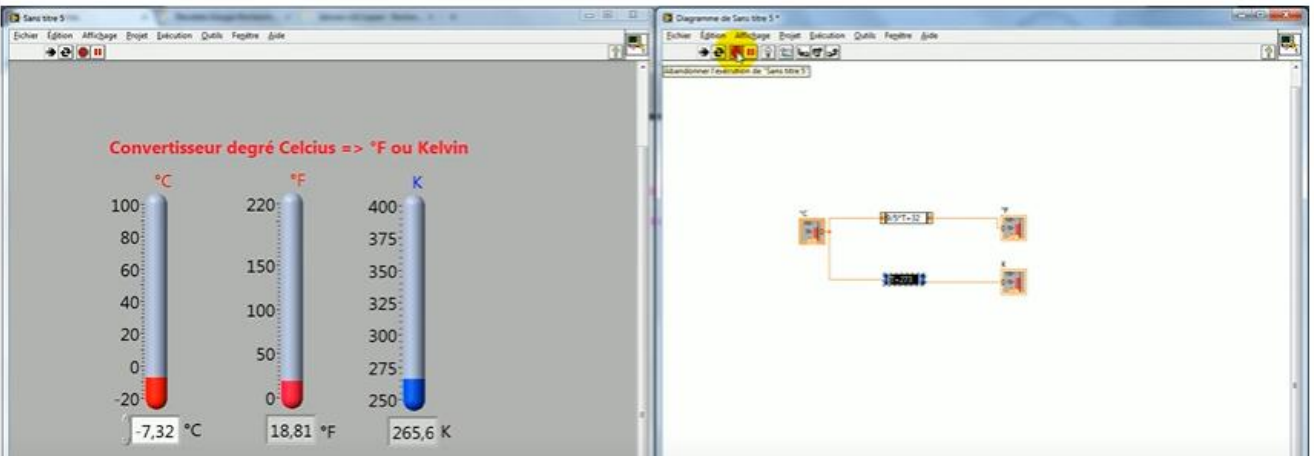
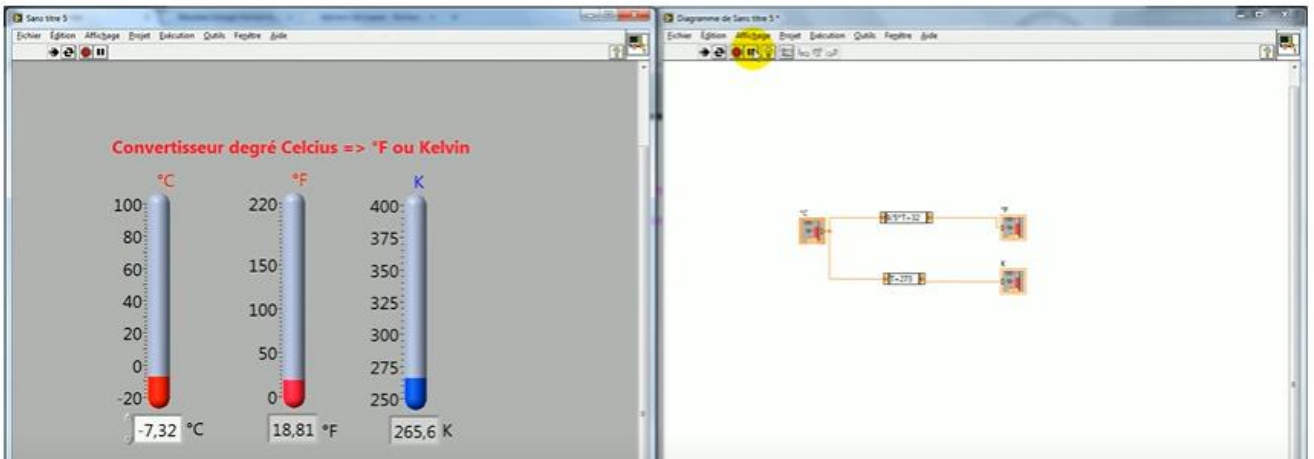
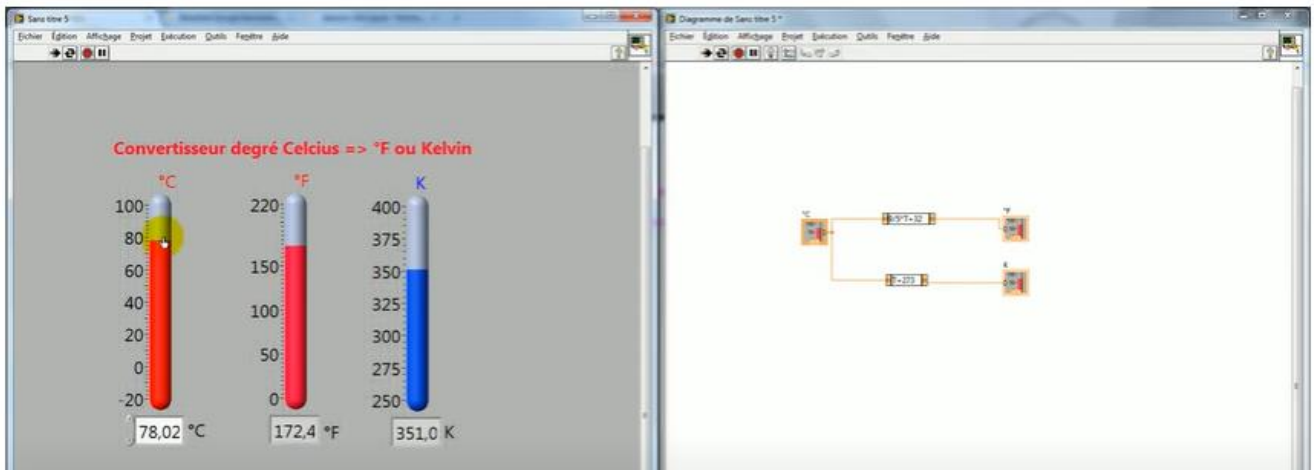




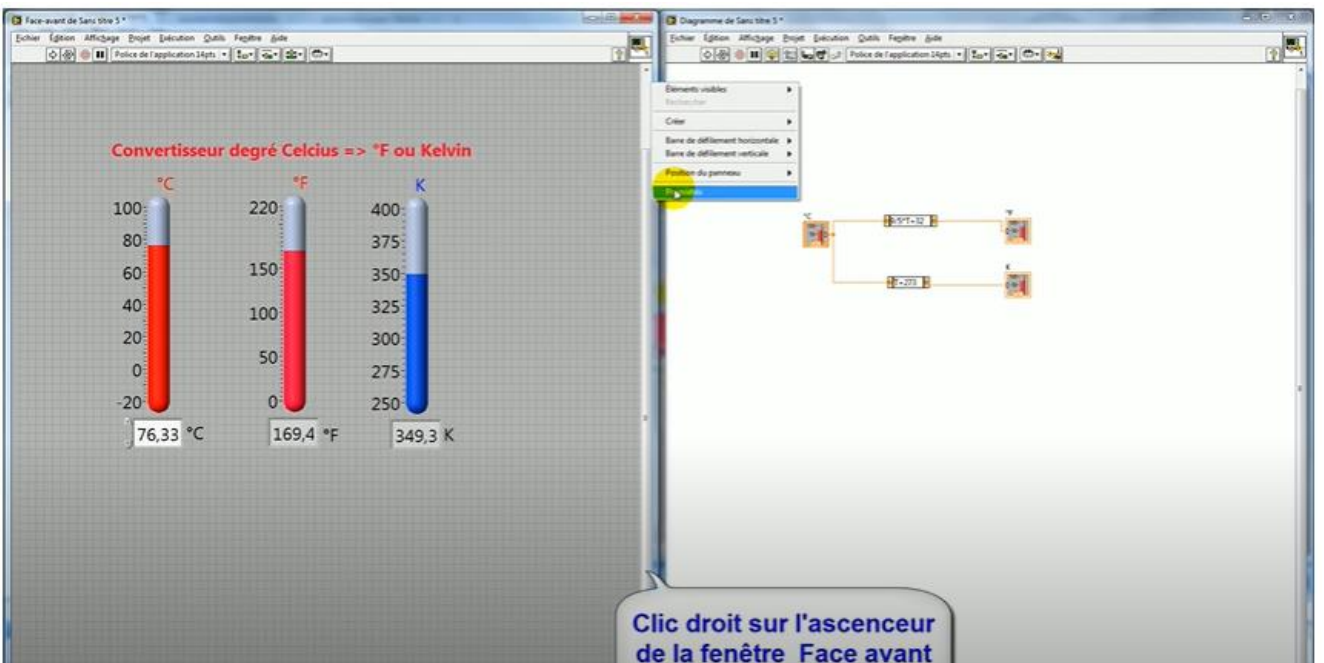
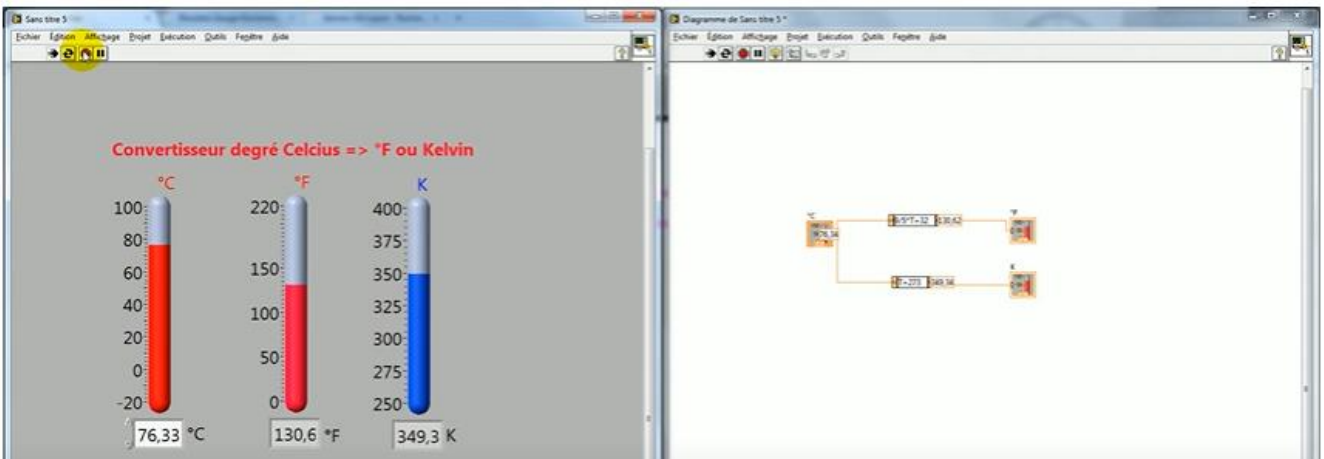
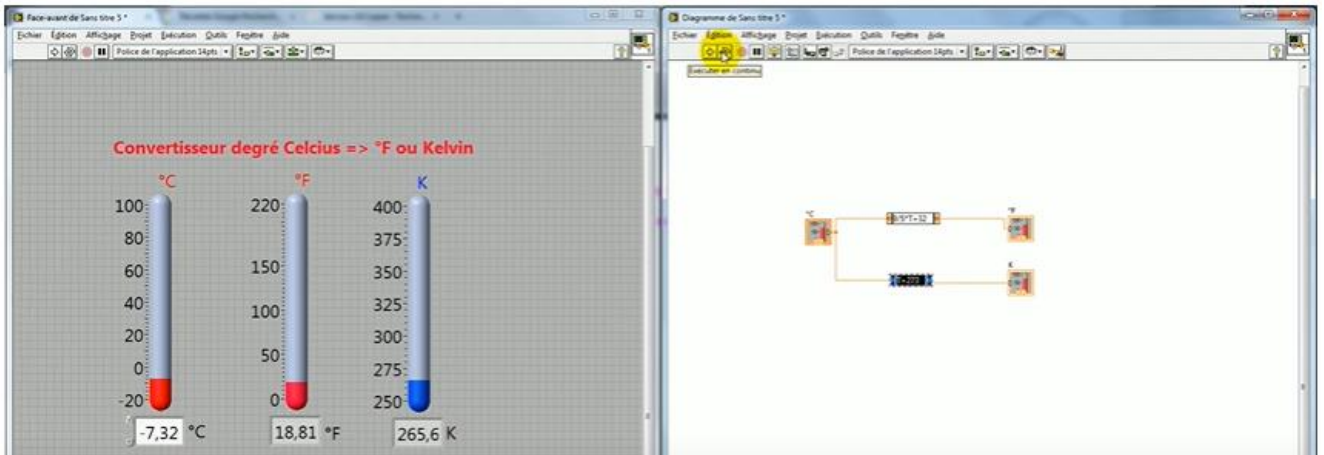


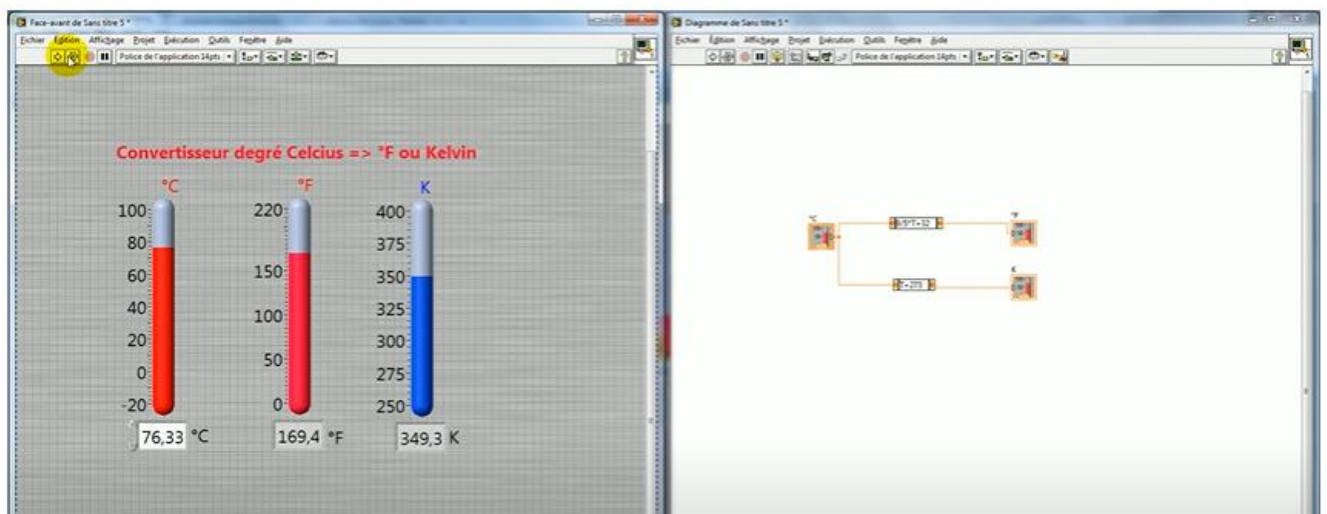
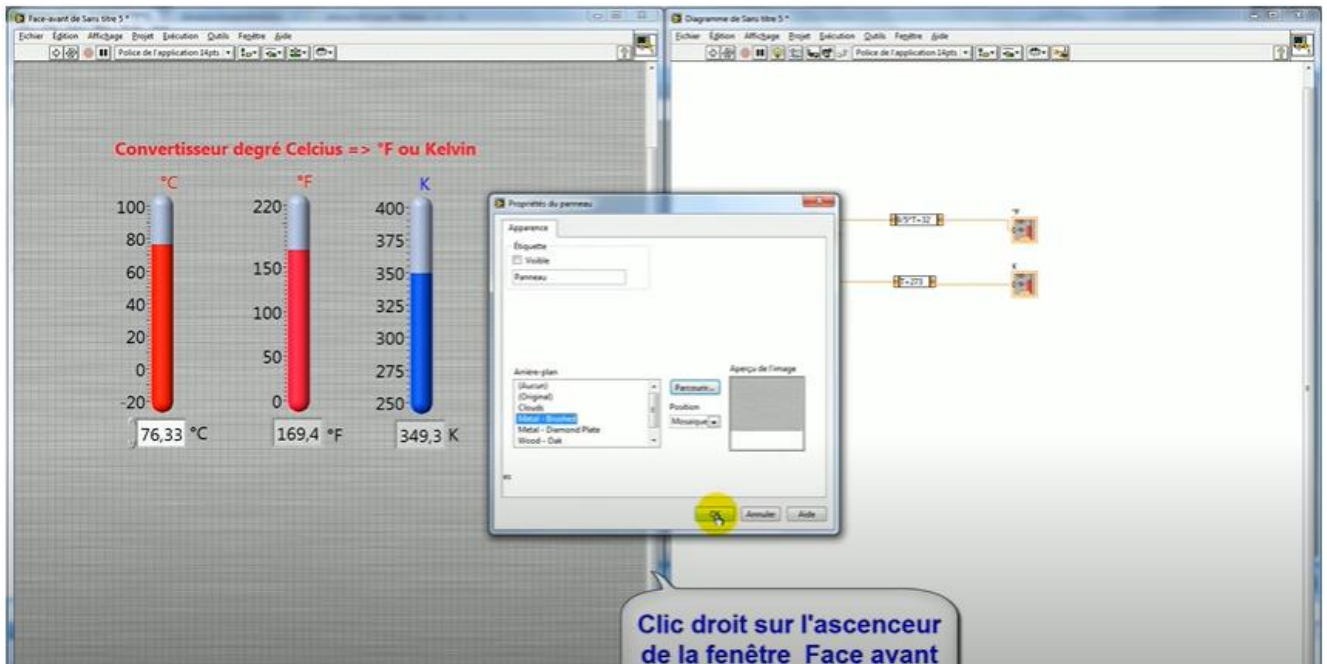
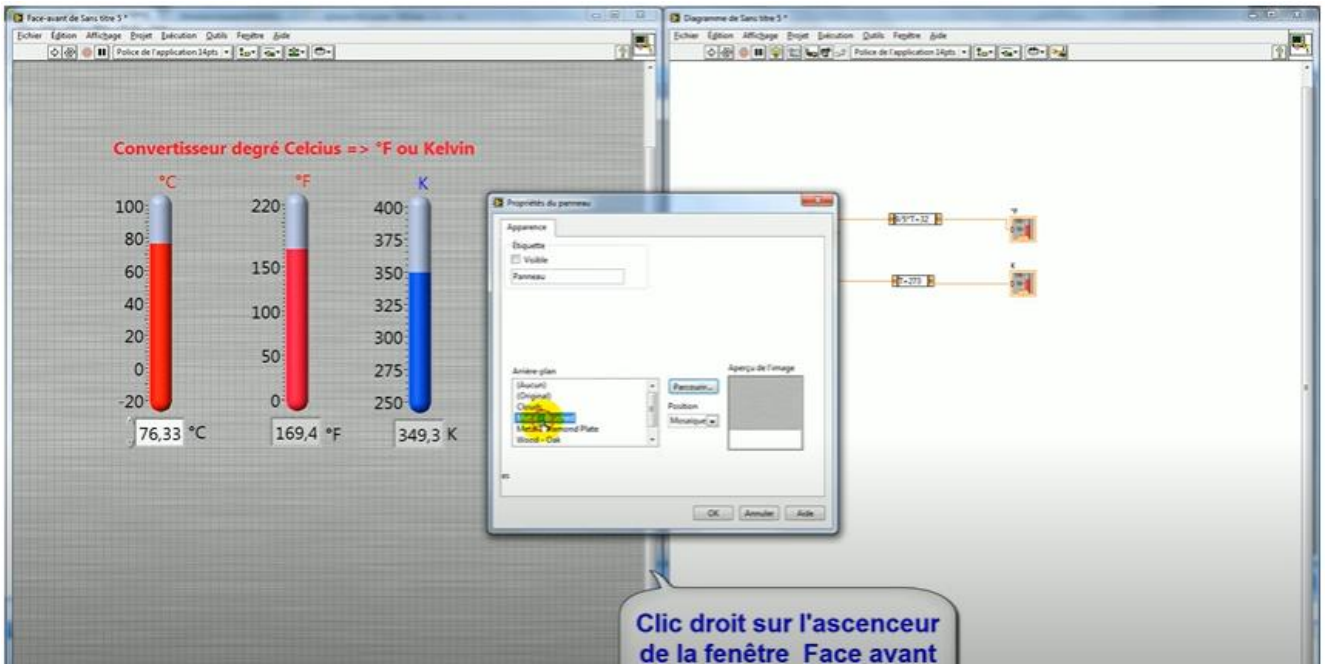


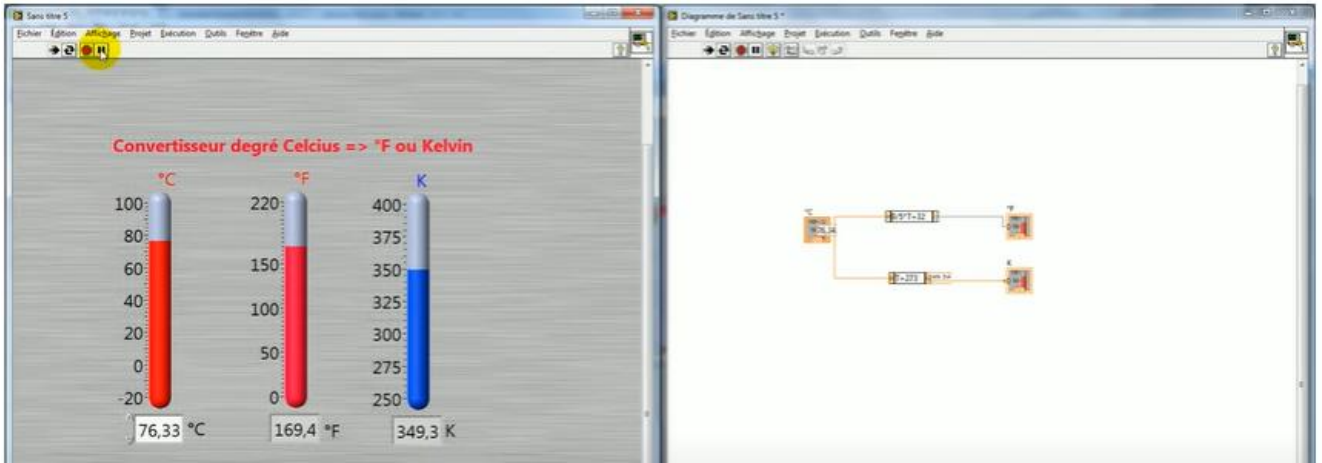










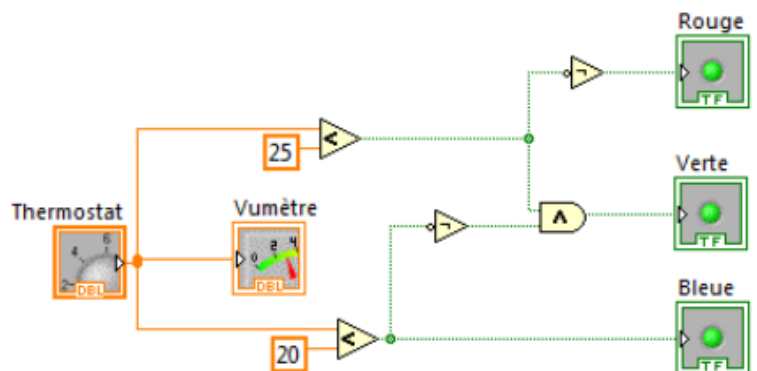
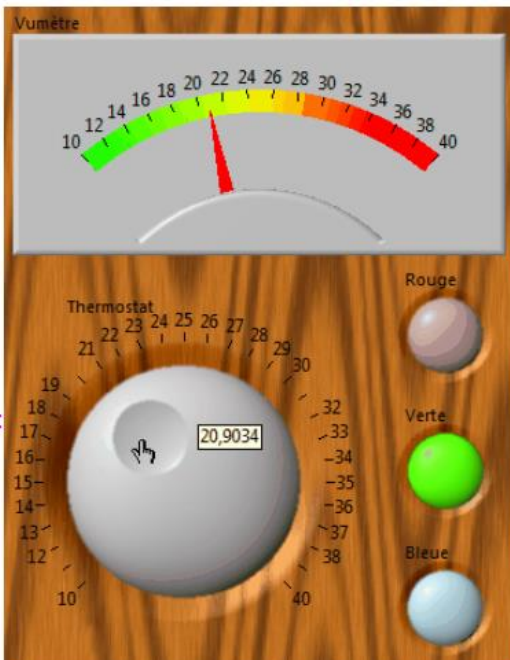


**Exercice 03 :**

Réaliser un VI qui permet de réaliser un bouton rotatif joue le rôle de thermostat T.

- Lorsque  $T < 20$  une led bleue s'allume ;
- Lorsque  $20 \leq T < 25$  une led verte s'allume ;
- Lorsque  $T \geq 25$  une led rouge s'allume.

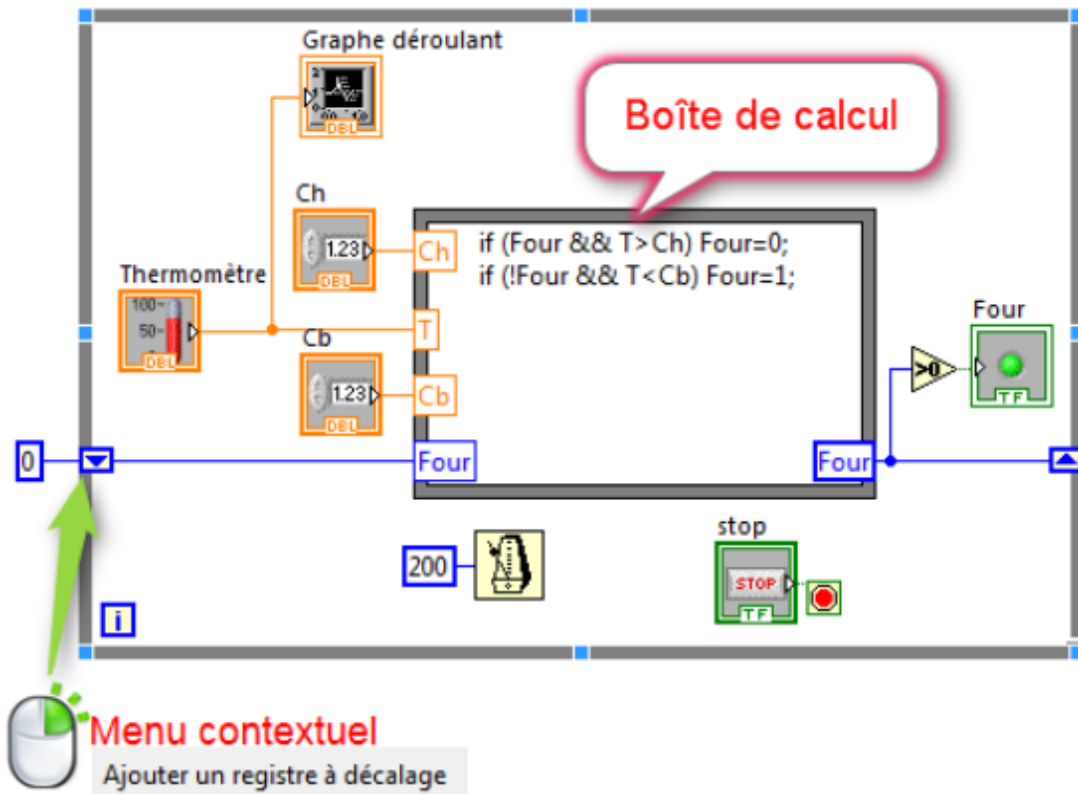
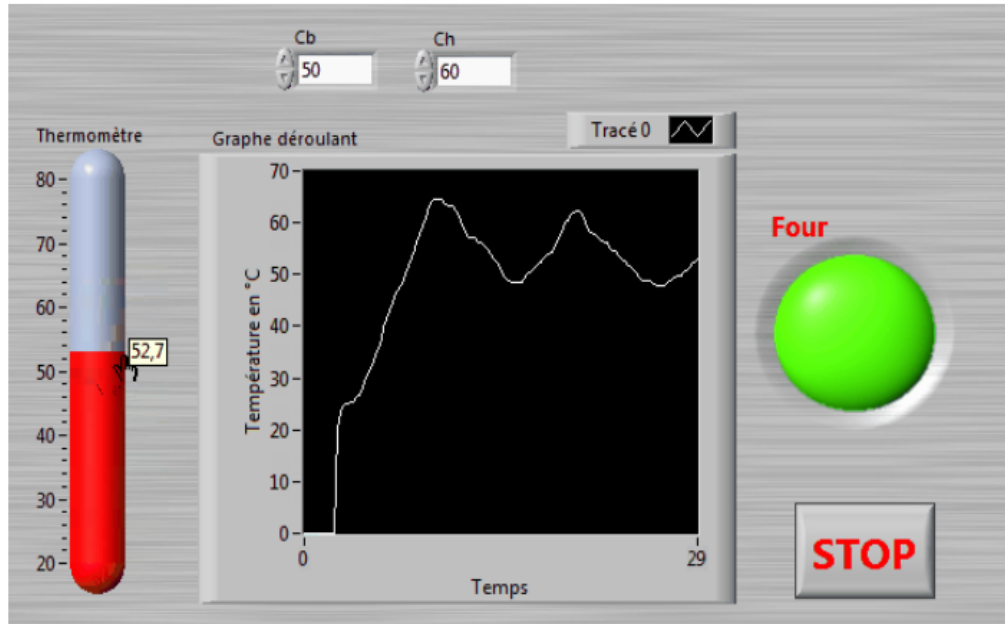
Face avant et Diagramme possibles sont :



**Exercice 04 :**

La régulation de température TOR à 2 seuils Ch et Cb, en langage LabVIEW avec une interface graphique :

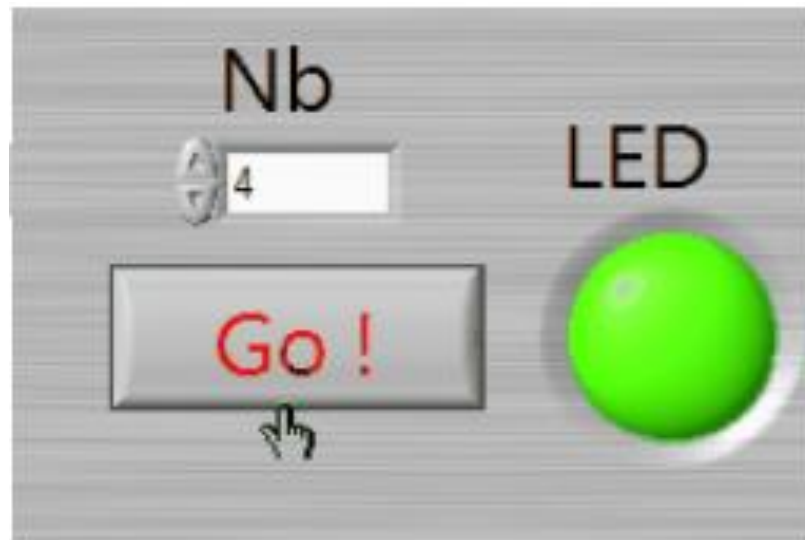
Face avant souhaitée :

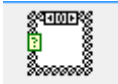





**Exercice05 :**

Faire un programme qui fait clignoter une LED N fois lorsque l'on clique sur le bouton Go.

Face avant souhaitée :



- Structures imposées : une structure condition  Condition ;
- Structure For  Boucle For et une structure séquence  Séq. déroulée ;
- Créer une variable locale  à partir de l'indicateur LED.

