

Practice #2

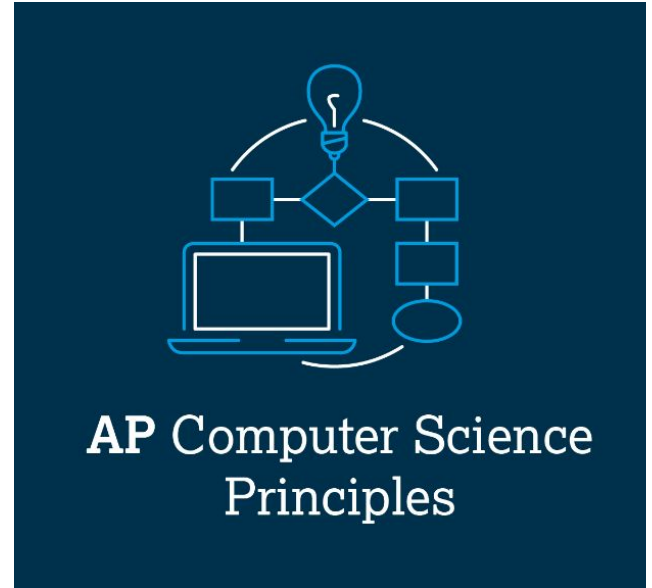
Create Performance Task



AP CSP Create Performance Task

Part of the AP Exam is to create a program that meets specific requirements. Things to know about the Create PT:

- You can work with a partner
- Your teacher cannot help you
- You cannot use an assigned program for your project, but it can be similar
- Your classmates can help you
- You will be given 9 hours of class time to work on the project
- You will be asked to submit a video of the code working

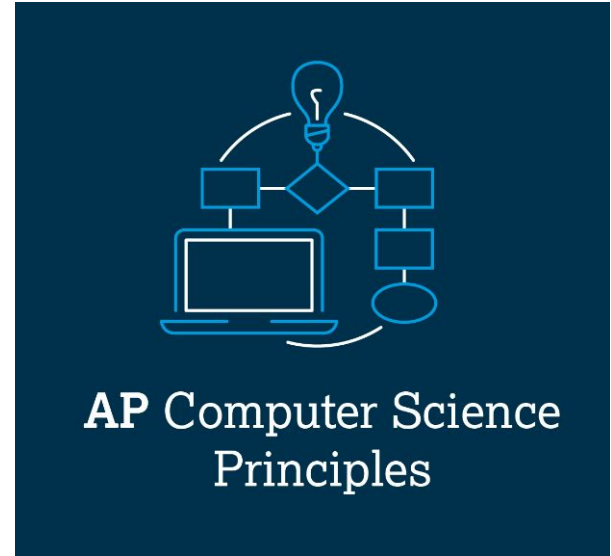


AP CSP Create Performance Task

Create PT specific requirements:

- Creates a list
- Uses a list in a meaningful way
- Has a function with a parameter
- Function is called in code (with argument)
- Function has:
 - If statement (uses parameter)
 - Loop (while or for)

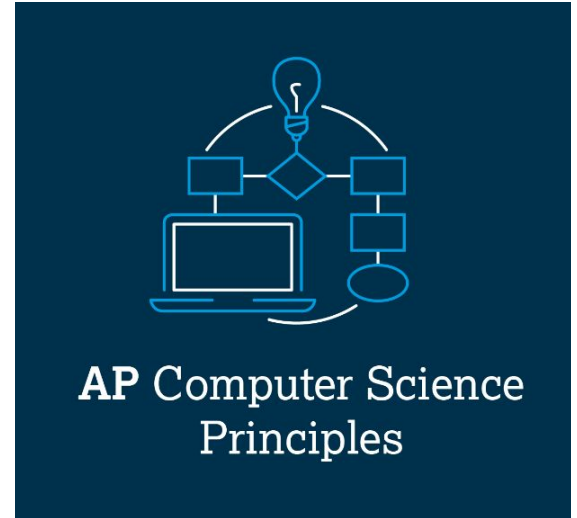
You must be able to identify these parts in your code



AP CSP Create Performance Task

Create PT Practice #1 met most of the requirements:

- Creates a list
- Uses a list in a meaningful way
- Has a function with a parameter
- Function is called in code (with argument)
- Function has:
 - If statement (uses parameter)
 - **Loop (while or for) – not done**



AP CSP Create Performance Task

Open your code for Create PT Practice #1. Identify these parts on your assignment document:

- Create a list
 - In this program you created 4 lists. Just select **one** of them
- Use the list
 - Show where you used the list selected above
- Create a function that has a parameter
 - This is where you define the function.
 - Include all the code in the function, not just the definition and parameter.
- If statement in the function
 - Include all parts of the if statement
- Call the function with a parameter
 - Show where you called the function above, including the argument



Step #1

Start a new project

- For this assignment, you will fulfill all requirements in Practice #1.
- Therefore, you will NOT start a new project, but add to the one you already completed.

DO THIS:

- Open your **Practice_PT_1**
- Do a “Save As” and call it **Practice_PT_2**



Step #2

```
def display_info(state):
    global index
    if state == 1:
        the_list1 = dbacks_pos
        the_list2 = dbacks_players
        topic = "Diamondbacks"
    else:
        the_list1 = rangers_pos
        the_list2 = rangers_players
        topic = "Rangers"

    if buttons.was_pressed(BTN_R):
        display.clear()
        display.print(topic)
        display.print(the_list1[index])
        display.print(the_list2[index])
        index = index + 1
        if index >= len(the_list1):
            index = 0

    if buttons.was_pressed(BTN_L):
        display.clear()
        display.print(the_list1[index])
```

Using a loop in the function

The only requirement not met in Practice #1 is including a loop in your function.

- Look at Practice #1 - the function with the parameter
- Do you see a loop?



Step #2

```
def slideshow(topic):  
    if topic == 1:  
        the_list1 = dbacks_pos  
        the_list2 = dbacks_players  
        team = "Diamondbacks"  
    else:  
        the_list1 = rangers_pos  
        the_list2 = rangers_players  
        team = "Rangers"  
    for index in range(len(the_list1)):  
        display.clear()  
        display.print(team)  
        display.print(the_list1[index])  
        display.print(the_list2[index])  
        sleep(2)  
    display.clear()  
    display.print("End of list")
```

Using a loop in the function

You will include that requirement today.

- Open the Traverse program from the previous lesson.
- Identify the function with a parameter.
- Do you see a loop?
- You will add it to Practice #2



Step #3

Modify the intro function

It is always nice to include instructions with your code, and a message when the program ends.

You should have two programs open: **Practice_PT_2** and **Traverse_List**

- You will be modifying and adding code to **Practice_PT_2**
- You have already coded all 6 buttons, so we are going to change one of them to include a loop



Step #3

```
def intro():  
    display.print("Welcome to the ")  
    display.print("World Series")  
    display.print("A = Diamondbacks")  
    display.print("B = Rangers")  
    display.print("")  
    display.print("R = Scroll forward")  
    display.print("L = Slideshow")  
    display.print("U = Random player")  
    display.print("D = Quit")
```

Modify the intro() function

Instead of scrolling right and left, your code will scroll one way only. The other button will be used to display a slideshow using a loop.

- Modify the intro() to display the new option



Step #4

```
if buttons.was_pressed(BTN_L):  
    display.clear()  
    display.print(the_list1[index])  
    display.print(the_list2[index])  
    index = index - 1  
    if index < 0:  
        index = len(the_list1) - 1
```

Modify the display_info() function

- In your display_info() function, find the if statement for BTN_L
- Delete the code inside the if statement



Step #4

```
def slideshow(topic):  
    if topic == 1:  
        the_list1 = dbacks_pos  
        the_list2 = dbacks_players  
        team = "Diamondbacks"  
    else:  
        the_list1 = rangers_pos  
        the_list2 = rangers_players  
        team = "Rangers"  
    for index in range(len(the_list1)):  
        display.clear()  
        display.print(team)  
        display.print(the_list1[index])  
        display.print(the_list2[index])  
        sleep(2)  
    display.clear()  
    display.print("End of list")
```

Modify the display_info() function

- Copy the **for loop** from the traversals program and paste into the if statement for BTN_L (Practice #2 program)



Step #5

All requirements met!

Look over your code again. Can you identify where all requirements are met in Practice #2?

- Creates a list
- Uses a list in a meaningful way
- Has a function with a parameter
- Function is called in code (with argument)
- Function has:
 - If statement (uses parameter)
 - Loop (while or for)



Step #5

Code runs without errors

- Run your program and make sure it doesn't contain any errors
- When you press the buttons, do you get the correct results?
 - BTN_A: changes to first 2 lists
 - BTN_B: changes to last 2 lists
 - BTN_R: scrolls through the lists
 - BTN_U: random items
 - BTN_L: slideshow
 - BTN_D: quits the program



Challenge

```
if buttons.was_pressed(BTN_R):
    display.clear()
    display.print("Scrolling")
    display.print(topic)
    display.print(the_list1[index])
    display.print(the_list2[index])
    index = index + 1
    if index >= len(the_list1):
        index = 0
```

Add your own creative touch

What else can you add to the program?

One thing you can add is a description of what is happening. For example, if the program is scrolling through the list, print that in addition to the data.



Challenge

Add your own creative touch

What else can you add?

- Turn the pixels on, depending on what is selected
- Change pixel colors throughout
- Add sounds
- Add a counter and display how many times the buttons were pressed as part of the ending
- And anything else !



Now you have your second create PT practice

Congratulations!

By completing this practice project you have met all the requirements for the PT:

- Creating a list
- Using the list in a meaningful way
- Creating a function with a parameter
- Calling the function
- Using sequence and selection and iteration in the function
- Using the parameter in an if statement



Now you have your second create PT practice

Moving forward

You will continue to prepare for the Create PT by:

- Learning about global and local variables
- Learning when a parameter is needed
- Completing another practice PT

