Midterm Exam: Skill test	
Course Code: CPE 201	**Program:** BS in Computer Engineering
Course Title: Database Structure and Algorithm	**Date Performed:** 09/08/25
Section: BSCpE 2B	**Date Submitted:** 09/0825
Name: Adoracion, Jerick Dave D.	**Instructor:** Engr. Maria Rizette Sayo

1.Objectives

In this output, we are tasked to Implement an Array of Integers less than 50 but not less than 20 and do the following operations:

A. Display the elements
B. Count the number of elements
C. Count the number of odd and even integers

2. Discussion

Nowadays, **digital jobs and businesses are in-demand**. Hence, as a part of the new generation, we must embrace the trends through programming. This way, we will be more technologically literate and we can work efficiently. As a beginner, of one the things you must learn is Data Structure.

In this output, we will be tackling the arrays. Data Structure is a one way of storing data efficiently. One of its type is array, an array is a type of data structure that stores multiple elements in a single variable.

3. Materials and Equipment

In this output, I used my laptop and used my own internet to efficiently do my work without any delays. In this way, I was able to enjoy doing this without pressure. With the help of Google Colab, w3school, and Microsoft words, I was able to write my code and my written report. In order to pass my work, I used my GitHub account to post a repository.

4. Procedure

There are countless procedures I've done in order to do this. Firstly, I scrolled through the w3school in order to find and access more information that can help me. Next, I then used various ways in order to get the code that I want to build. After finding what I need, I then analyzed each and terminate the unnecessary lines. Then, I tried the different choices I've made and once it was successful, I got ready to write my report. Lastly, I passed this on my GitHub.

Here is the Source code:

```
array_int = [
    i for i in range(20, 50)
      if i % 2 == 0
]
print("The Elements on my list are:")
print(array_int)

def length_array():
    array_int = [
        i for i in range(20, 50)
        if i % 2 == 0
    ]
    count = 0
    for i in array_int:
        count += 1
    return count

def traverse_odd_array():
    array_odd_int = [
        i for i in range(20, 50)
        if i % 2 != 0
    ]
    print("The odd integers are:")
    print(array_odd_int)
    return len(array_odd_int)

def traverse_even_array():
    array_even_int = [
        i for i in range(20, 50)
        if i % 2 == 0

    ]
    print("The even integers are:")
    print(array_even_int)
    return len(array_even_int)


while True:
  print("\nMenu:")
  print("1. Count the Elements of the array")
  print("2. Count the number of Odd integers and display the list")
  print("3. Count the number of Even integers and display the list")
  print("4. Exit")
  choice = input("\nEnter your choice (1 to 4): ")
```

Figure 1: Source code

```
if choice == '1':
 length = length_array()
 print("The length of the array is:", length)

elif choice == '2':
 odd_count = traverse_odd_array()
 print("The number of odd integers is:", odd_count)

elif choice == '3':
  even_count = traverse_even_array()
  print("The number of even integers is:", even_count)


elif choice == '4':
  print("Exiting...")
  break
```

Figure 2: Source code

5. Output

```
The Elements on my list are:
[20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48]

Menu:
1. Count the Elements of the array
2. Count the number of Odd integers and display the list
3. Count the number of Even integers and display the list
4. Exit

Enter your choice (1 to 4):
```

Figure 3: User Interface

```
The Elements on my list are:
[20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48]

Menu:
1. Count the Elements of the array
2. Count the number of Odd integers and display the list
3. Count the number of Even integers and display the list
4. Exit

Enter your choice (1 to 4): 1
The length of the array is: 15
```

Figure 4: Length of the array

```
Menu:
1. Count the Elements of the array
2. Count the number of Odd integers and display the list
3. Count the number of Even integers and display the list
4. Exit

Enter your choice (1 to 4): 2
The odd integers are:
[21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49]
The number of odd integers is: 15
```

Figure 5: Number of Odd Integers

```
Menu:
1. Count the Elements of the array
2. Count the number of Odd integers and display the list
3. Count the number of Even integers and display the list
4. Exit

Enter your choice (1 to 4): 3
The even integers are:
[20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48]
The number of even integers is: 15
```

Figure 5: Number of Even Integers

```
Menu:
1. Count the Elements of the array
2. Count the number of Odd integers and display the list
3. Count the number of Even integers and display the list
4. Exit

Enter your choice (1 to 4): 4
Exiting...
```

Figure 5: Exit Menu

6. Conclusion

In this output, I've realized that I've gone so far now. During our first class on DSA, I'm afraid to code because I lack most of the necessary knowledge for this course. But now, after all the laboratory experiment, all the trials and error, all the struggling, has now been paid off. I was able to accumulate all the knowledge that I've learned along the way and use them on this specific work. I used the activity 2 that we did during the lessons as a reference wherein I also put a user interface wherein the user can pick choices so that they can decide which one to choose as output.

In a nutshell, this output was a bit challenging since I struggle at first about the elements I should put inside the list. But now that I'm finally done, all the overthinking and all the struggles have been worn off inside my head. I've learned so much, I've experienced a lot, and I can say to myself that I am proud of you for completing this within the alloted time.

Lab Activity Rubric

Criteria	Ratings						Pts
SO 7 PI 1 **Student Outcome 7.1** Acquire and apply new knowledge from outside sources. threshold: 4.8 pts	6 pts Excellent | Educational interests and pursuits exist and flourish outside classroom requirements,knowledge and/or experiences are pursued independently and applies knowledge learned into practice	5 pts Good | Educational interests and pursuits exist and flourish outside classroom requirements,knowledge and/or experiences are pursued independently	4 pts Satisfactory | Look beyond classroom requirements, showing interest in pursuing knowledge independently	3 pts Unsatisfactory | Begins to look beyond classroom requirements, showing interest in pursuing knowledge independently	2 pts Poor | Relies on classroom instruction only	1 pts Very Poor | No initiative or interest in acquiring new knowledge	6 pts
SO 7 PI 2 **Student Outcome 7.2** Learn independently threshold: 4.8 pts	6 pts Excellent | Completes an assigned task independently and practices continuous improvement	5 pts Good | Completes an assigned task without supervision or guidance	4 pts Satisfactory | Requires minimal guidance to complete an assigned task	3 pts Unsatisfactory | Requires detailed or step-by-step instructions to complete a task	2 pts Poor | Shows little interest to complete a task independently	1 pts Very Poor | No interest to complete a task independently	6 pts
SO 7 PI 3 **Student Outcome 7.3** Critical thinking in the broadest context of technological change threshold: 4.8 pts	6 pts Excellent | Synthesizes and integrates information from a variety of sources; formulates a clear and precise perspective; draws appropriate conclusions	5 pts Good | Evaluate information from a variety of sources; formulates a clear and precise perspective.	4 pts Satisfactory | Analyze information from a variety of sources; formulates a clear and precise perspective.	3 pts Unsatisfactory | Apply the gathered information to formulate the problem	2 pts Poor | Gather and summarized the information from a variety of sources but failed to formulate the problem	1 pts Very Poor | Gather information from a variety of sources	6 pts
SO 7 PI 4 **Student Outcome 7.4** Creativity and adaptability to new and emerging technologies threshold: 4.8 pts	6 pts Excellent | Ideas are combined in original and creative ways in line with the new and emerging technology trends to solve a problem or address an issue.	5 pts Good | Ideas are creative and adapt the new knowledge to solve a problem or address an issue	4 pts Satisfactory | Ideas are creative in solving a problem, or address an issue	3 pts Unsatisfactory | Shows some creative ways to solve the problem	2 pts Poor | Shows initiative and attempt to develop creative ideas to solve the problem	1 pts Very Poor | Ideas are copied or restated from the sources consulted	6 pts
							Total Points: 24