Assignment-------1

Code-1

def reverse\_string(s):  
 reversed\_str = ""  
 for i in range(len(s) - 1, -1, -1):  
 reversed\_str += s[i]  
 return reversed\_str  
  
def main():  
 input\_string = "Hello, world!"  
 reversed\_string = reverse\_string(input\_string)  
 print(f"Reversed string: {reversed\_string}")  
  
if \_\_name\_\_ == "\_\_main\_\_":  
 main()

Code—2

def get\_age():  
 age\_str = input("Please enter your age: ")  
 if age\_str.isnumeric():  
 age = int(age\_str)  
 if age >= 18:  
 return age  
 return None  
  
def main():  
 age = get\_age()  
 if age is not None:  
 print(f"You are {age} years old and eligible.")  
 else:  
 print("Invalid input. You must be at least 18 years old.")  
  
if \_\_name\_\_ == "\_\_main\_\_":  
 main()

Code—3

def read\_and\_write\_file(filename):  
 try:  
 with open(filename, 'r') as file:  
 content = file.read()  
 with open(filename, 'w') as file:  
 file.write(content.upper())  
 print(f"File '{filename}' processed successfully.")  
 except FileNotFoundError:  
 print(f"Error: File '{filename}' not found.")  
 except Exception as e:  
 print(f"An error occurred: {str(e)}")  
  
def main():  
 filename = "sample.txt"  
 read\_and\_write\_file(filename)  
  
if \_\_name\_\_ == "\_\_main\_\_":  
 main()

Code-4

def merge\_sort(arr):  
 if len(arr) <= 1:  
 return arr  
  
 mid = len(arr) // 2  
 left = arr[:mid]  
 right = arr[mid:]  
  
 left = merge\_sort(left)  
 right = merge\_sort(right)  
  
 i = j = k = 0  
 while i < len(left) and j < len(right):  
 if left[i] < right[j]:  
 arr[k] = left[i]  
 i += 1  
 else:  
 arr[k] = right[j]  
 j += 1  
 k += 1  
  
 while i < len(left):  
 arr[k] = left[i]  
 i += 1  
 k += 1  
  
 while j < len(right):  
 arr[k] = right[j]  
 j += 1  
 k += 1  
  
 return arr  
  
arr = [38, 27, 43, 3, 9, 82, 10]  
merge\_sort(arr)  
print(f"The sorted array is: {arr}")