Assignment 2:

Write a script that reads numbers from the user until they enter '0'. The script should also print whether each number is odd or even.

Sol:

```
#!/bin/bash

# Function to check if a number is odd or even
check_odd_or_even () {
   if (( $1 % 2 == 0 )); then
      echo "$1 is even"
   else
      echo "$1 is odd"
   fi
}
# Infinite loop to read numbers from the user
while true; do
   # Prompt the user to enter a number
   read -p "Enter a number (0 to exit): " number

   # Check if the entered number is '0'
   if [ "$number" -eq 0 ]; then
      echo "Exiting..."
      break
   fi

   # Check if the entered value is a valid number
   if! [[ "$number" =~ ^-? [0-9]+$ ]]; then
      echo "Invalid input. Please enter a valid number."
      continue
   fi
```

```
    # Call the function to check if the number is odd or even
    check_odd_or_even "$number"
done
```

Explanation

1. **Shebang (`#!/bin/bash`)**:

- This line indicates that the script should be executed using the Bash shell.

2. **Function Definition**:

- **`check_odd_or_even ():`** A function that checks if the provided number is odd or even.
- It uses the modulo operator (`%`) to determine if the number is even (remainder of division by 2 is 0) or odd.

3. **Infinite Loop**:

- **`while true; do:`** An infinite loop to continuously read numbers from the user.

4. **Reading User Input**:

- **`read -p "Enter a number (0 to exit): " number:`** Prompts the user to enter a number and stores the input in the `number` variable.

5. **Exit Condition**:

- **`if [ "$number" -eq 0 ]; then:`** Checks if the entered number is '0'.
- If it is, the script prints "Exiting..." and breaks the loop to terminate the script.

6. **Input Validation**:

- **`if! [[ "$number" =~ ^-?[0-9]+$ ]]; then:`** Uses a regular expression to check if the input is a valid number (including negative numbers).
- If the input is not a valid number, it prints an error message and continues to the next iteration.

7. **Odd or Even Check**:

- If the input is a valid number and not '0', the script calls the `check_odd_or_even` function to determine if the number is odd or even and prints the result.