

Program

```
decimal_to_binary() {
    local deci=$1
    binary=""
    while (($deci>0)); do
        rem=$((deci%2))
        binary="${rem}${binary}"
        deci=$((deci/2))
    done
    echo $binary
}

decimal_to_octal() {
    local deci=$1
    octal=""
    while (( $deci>0 )); do
        rem=$((deci%8))
        octal="${rem}${octal}"
        deci=$((deci/8))
    done
    echo $octal
}

decimal_to_hexadecimal() {
    local deci=$1
    hexa=""
    while (( $deci>0 )); do
        rem=$((deci%16))
        if (($rem<10)); then
            hexa="${rem}${hexa}"
        elif (($rem==10)); then
            hexa="A${hexa}"
        elif (($rem==11)); then
            hexa="B${hexa}"
        elif (($rem==12)); then
            hexa="C${hexa}"
        elif (($rem==13)); then
            hexa="D${hexa}"
        elif (($rem==14)); then
            hexa="E${hexa}"
        elif (($rem==15)); then
            hexa="F${hexa}"
        fi
        deci=$((deci/16))
    done
}
```

```
    echo $hexa  
}
```

```
echo "1. Convert to Binary"  
echo "2. Convert to Octal"  
echo "3. Convert to Hexadecimal"  
echo "4. Exit"  
while true; do  
    read -p "Enter number: " deci  
  
    if ! [[ $deci =~ ^[0-9]+$ ]]; then  
        echo "Invalid input"  
        continue  
    fi  
    read -p "Enter your choice: " choice  
  
    if [[ $choice -eq 4 ]]; then  
        echo "Exit"  
        break  
    fi  
    case $choice in  
        1)  
            echo "$(decimal_to_binary $deci)"  
            ;;  
        2)  
            echo "$(decimal_to_octal $deci)"  
            ;;  
        3)  
            echo "$(decimal_to_hexadecimal $deci)"  
            ;;  
        *)  
            echo "Invalid choice"  
            ;;  
    esac  
done
```

Sample run of the program

```
s23a40@Server-2:~/blab$ bash ex6.sh
1. Convert to Binary
2. Convert to Octal
3. Convert to Hexadecimal
4. Exit
Enter number: 21
Enter your choice: 1
10101
Enter number: 43
Enter your choice: 2
53
Enter number: 5543
Enter your choice: 3
15A7
Enter number: 4
Enter your choice: 4
Exit
s23a40@Server-2:~/blab$ █
```