UE24CS151B (LAB) : Problem Solving With C integrated with Lab Week-6 Solutions

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Code 1:

```c
#include <stdio.h>


int sumEven(int arr[], int size);


int main() {
    int arr[100], size, i;
    printf("Enter size of array: ");
    scanf("%d", &size);


    for (i = 0; i < size; i++) {
        printf("Enter array element %d: ", i+1);
        scanf("%d", &arr[i]);
    }
    printf("Sum of even numbers: %d", sumEven(arr, size));
    return 0;
}
int sumEven(int arr[], int size) {
    int sum = 0, i;
    for (i = 0; i < size; i++) {
        if (arr[i] % 2 == 0) {
            sum += arr[i];
```

```
    }
  }
  return sum;
}
```

Solution:

```
Output

Enter size of array: 4
Enter array element 1: 2
Enter array element 2: 23
Enter array element 3: 3
Enter array element 4: 6
Sum of even numbers: 8
```

Code 2:

```c
#include <stdio.h>

void swap(int *a, int *b);

int main() {
    int arr[100], size, i, idx1, idx2;
    printf("Enter size of array: ");
```

```c
    scanf("%d", &size);


    for (i = 0; i < size; i++) {

        printf("Enter array element %d: ", i+1);

        scanf("%d", &arr[i]);

    }

    printf("Enter indices to swap: ");

    scanf("%d %d", &idx1, &idx2);

    swap(&arr[idx1], &arr[idx2]);

    printf("Array after swap: ");

    for (i = 0; i < size; i++) {

        printf("%d ", arr[i]);

    }

    return 0;

}


void swap(int *a, int *b) {

    int temp = *a;

    *a = *b;

    *b = temp;

}
```

Solution:

```
Output

Enter size of array: 6
Enter array element 1: 1
Enter array element 2: 2
Enter array element 3: 3
Enter array element 4: 4
Enter array element 5: 678
Enter array element 6: 9
Enter indices to swap: 3
0
Array after swap: 4 2 3 1 678 9
```

Code 3:

```c
#include <stdio.h>

int isPalindrome(int num);

int main() {

    int num;

    printf("Enter a number: ");

    scanf("%d", &num);

    if (isPalindrome(num)) {

        printf("Palindrome");

    } else {

        printf("Not a palindrome");

    }
```

```
    return 0;

}

int isPalindrome(int num) {

    int reversed = 0, original = num;

    if (num < 0) return 0;

    while (num > 0) {

        reversed = reversed * 10 + num % 10;

        num /= 10;

    }

    return original == reversed;

}
```

Solution:

```
Output

Enter a number: 56789
Not a palindrome
```

```
Output

Enter a number: 474
Palindrome
```

Code 4:

```c
#include <stdio.h>

#define SUBJECTS 5

#define MAX_MARKS 100


void inputMarks(int arr[][SUBJECTS], int s);

void updateMarks(int arr[][SUBJECTS], int s, int r);

void printMarks(int arr[][SUBJECTS], int s);


int main() {

    int arr[100][SUBJECTS], s, r;


    printf("Enter number of students: ");

    scanf("%d", &s);


    inputMarks(arr, s);


    printf("\nEnter roll to update (1-%d): ", s);

    scanf("%d", &r);


    updateMarks(arr, s, r - 1);


    printf("\nUpdated marks:\n");

    printMarks(arr, s);


    return 0;

}
```

```c
void inputMarks(int arr[][SUBJECTS], int s) {

    char *subjectNames[] = {"Eng", "Maths", "Phy", "Chem", "CS"};


    for (int i = 0; i < s; i++) {

        printf("\nStudent %d:\n", i + 1);

        for (int j = 0; j < SUBJECTS; j++) {

            printf("Marks of student %d in %s: ", i + 1, subjectNames[j]);

            scanf("%d", &arr[i][j]);

            if(arr[i][j] > MAX_MARKS) arr[i][j] = MAX_MARKS;

        }

    }

}


void updateMarks(int arr[][SUBJECTS], int s, int r) {

    if (r < 0 || r >= s) {

        printf("Invalid roll\n");

        return;

    }


    for (int j = 0; j < SUBJECTS; j++) {

        arr[r][j] += 5;

        if(arr[r][j] > MAX_MARKS) arr[r][j] = MAX_MARKS;

    }

}


void printMarks(int arr[][SUBJECTS], int s) {
```

```c
char *subjectNames[] = {"Eng", "Maths", "Phy", "Chem", "CS"};


    for (int i = O; i < s; i++) {

        printf("\nStudent %d:\n", i + 1);

        for (int j = O; j < SUBJECTS; j++) {

            printf("%s: %d\n", subjectNames[j], arr[i][j]);

        }

    }

}
```

Solution:

```
Output

Enter number of students: 3

Student 1:
Marks of student 1 in Eng: 45
Marks of student 1 in Maths: 65
Marks of student 1 in Phy: 78
Marks of student 1 in Chem: 87
Marks of student 1 in CS: 98

Student 2:
Marks of student 2 in Eng: 10
Marks of student 2 in Maths: 24
Marks of student 2 in Phy: 56
Marks of student 2 in Chem: 75
Marks of student 2 in CS: 78

Student 3:
Marks of student 3 in Eng: 44
Marks of student 3 in Maths: 55
Marks of student 3 in Phy: 67
Marks of student 3 in Chem: 09
Marks of student 3 in CS: 67

Enter roll to update (1-3): 2

Updated marks:

Student 1:
Eng: 45
Maths: 65
Phy: 78
Chem: 87
CS: 98

Student 2:
Eng: 15
Maths: 29
Phy: 61
Chem: 80
CS: 83

Student 3:
Eng: 44
Maths: 55
Phy: 67
Chem: 9
CS: 67
```