Institute of Computer Technology

B. Tech. Computer Science and Engineering

Sub: DS

Course Code: 2CSE302

Practical – 3

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Sem - 3

Branch: CS

Class: A

Batch: 32

Problem Definition-1:

Ankit is a 5-year-old kid, who is playing in a boardroom with a basket and balls. Each ball is having numbered on it like 1, 2, 3, …, 9. Ankit's aunt asked him to put all boll inside the basket. Here, the scenario is that basket is long enough to hold all balls but squeezed in width and can hold only one boll at a time. When the next ball is inserted, then that ball can lie on top of the old boll like this way.

- Push ball numbered as 1 inside the basket
- Push ball numbered as 8 inside the basket
- Push ball numbered as 9 inside the basket
- Push ball numbered as 7 inside the basket
- Push ball numbered as 2 inside the basket
- Pop ball from the basket
- Pop ball from the basket
- Push ball numbered as 3 inside the basket

Code:

```c
#include <stdio.h>
#include <stdlib.h>
```

```c
int top = -1;
int arr[9];
void push();
void pop();
void show();

int main()
{
    int num;

    while (1)
    {
        printf("\n1.Push Ball\n2.Pop Ball\n3.Show Ball\n4.End");
        printf("\n\nEnter the num: ");
        scanf("%d", &num);

        switch (num)
        {
        case 1:
            push();
            break;
        case 2:
            pop();
            break;
        case 3:
            show();
            break;
        case 4:
            exit(0);

        default:
            printf("\nInvalid");
        }
    }
}

void push()
{
    int x;

    printf("\nEnter the element to be added onto the stack: ");
    scanf("%d", &x);
    top = top + 1;
    arr[top] = x;
}

void pop()
{
```

```
    printf("\nPopped element: %d", arr[top]);
    top = top - 1;
}

void show()
{
    printf("\nElements present in the stack: \n");
    for (int i = top; i >= 0; --i)
    {
        printf("%d\n", arr[i]);
    }
}
```

Output-

```
Elements present in the stack:
3
8
7
9
8
1

1.Push Ball
2.Pop Ball
3.Show Ball
4.End

Enter the num: 2

Popped element: 3
1.Push Ball
2.Pop Ball
3.Show Ball
4.End

Enter the num: 2

Popped element: 8
```

```
Enter the num: 3

Elements present in the stack:
7
9
8
1
```