Write a program to show the working of stack using array.

```
#include <stdio.h>
#define N 5
int stack[N];
int top=-1;
void push()
{ int x;
  printf("Enter data\n");
  scanf("%d",&x);
  if (top==N-1)
  {
    printf("stack overflow");
  }
  else
  {
    top++;
    stack[top]=x;
  }
}
void pop()
{
  int item;
  if (top==-1)
  { printf("stack is empty\n");
  }
  else
  {
    item=stack[top];
    top--;
    printf("%d\n",item);
  }
}
void peek()
{
  if (top==-1)
  { printf("stack underflow\n");
  }
  else
  {
    printf("%d\n", stack[top]);
  }
}
```

```
void display()
{
  if (top==-1)
  { printf("stack underflow");
  }
  else
  {
    for(int i=top; i>-1; i--)
    {
      printf("%d\n", stack[i]);
    }
  }
}
```

```
void main()
{ int ch;
  do{
    printf("enter choice : 1. Push 2. Pop 3. Peek 4. display");
    scanf("%d", &ch);
    switch(ch)
    {
      case 1 :{push();
               break;}
      case 2 :{pop();
               break;}
      case 3 :{peek();
               break;}
      case 4 :{display();
               break;}
      default :{printf("Invalid choice");}
    }
  } while (ch!=0);
}
```

Output:

```
enter choice : 1. Push 2. Pop 3. Peek 4. Display
2
stack is empty
enter choice : 1. Push 2. Pop 3. Peek 4. Display
1
enter data
10
enter choice : 1. Push 2. Pop 3. Peek 4. Display
1
enter data
20
enter choice : 1. Push 2. Pop 3. Peek 4. Display
1
enter data
30
enter choice : 1. Push 2. Pop 3. Peek 4. Display
2
removed number = 30
enter choice : 1. Push 2. Pop 3. Peek 4. Display
3
20
enter choice : 1. Push 2. Pop 3. Peek 4. Display
4
20
10
enter choice : 1. Push 2. Pop 3. Peek 4. Display
0
Invalid choice
```