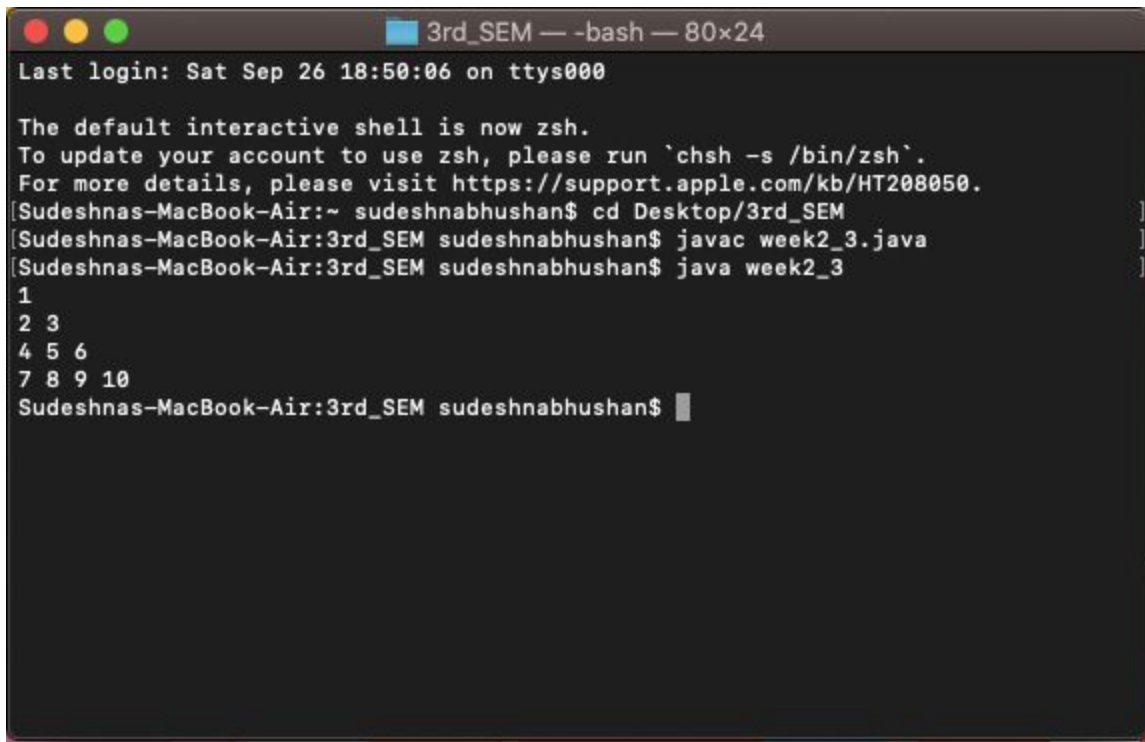


Q3.

```
class week2_3
{
    public static void main(String args[])
    {
        int a[][]=new int [4][4];
        int i,j,k=1;
        for(i=0;i<4;i++)
            for(j=0;j<i+1;j++)
            {
                a[i][j]=k;
                k++;
            }
        for(i=0;i<4;i++)
        {
            for(j=0;j<i+1;j++)
                System.out.print(a[i][j]+" ");
            System.out.println();
        }
    }
}
```



```
3rd_SEM — -bash — 80x24
Last login: Sat Sep 26 18:50:06 on ttys000

The default interactive shell is now zsh.
To update your account to use zsh, please run `chsh -s /bin/zsh`.
For more details, please visit https://support.apple.com/kb/HT208050.
[Sudeshnas-MacBook-Air:~ sudeshnabhushan$ cd Desktop/3rd_SEM
[Sudeshnas-MacBook-Air:3rd_SEM sudeshnabhushan$ javac week2_3.java
[Sudeshnas-MacBook-Air:3rd_SEM sudeshnabhushan$ java week2_3
1
2 3
4 5 6
7 8 9 10
Sudeshnas-MacBook-Air:3rd_SEM sudeshnabhushan$
```

Q4.

class week2_4

```
{
    public static void main(String args[])
    {
        double a=49.0,a1=72.0;
        System.out.println("The grade of student");
        System.out.println("CIE grade");
        if(a<=100 && a>80)
            System.out.print("A");
        else if(a<=80 && a>60)
            System.out.print("B");
        else if(a<=60 && a>40)
            System.out.print("C");
        else if(a<=40 && a>20)
            System.out.print("E");
        else if(a<=20 && a>0)
            System.out.print("F");

        System.out.println("\n");

        System.out.println("SEE grade");
        if(a1<=100 && a1>80)
            System.out.print("A");
        else if(a1<=80 && a1>60)
            System.out.print("B");
        else if(a1<=60 && a1>40)
            System.out.print("C");
        else if(a1<=40 && a1>20)
            System.out.print("E");
        else if(a1<=20 && a1>0)
            System.out.print("F");
    }
}
```

```
3rd_SEM — -bash — 80x24
Last login: Wed Sep 30 16:59:41 on ttys000

The default interactive shell is now zsh.
To update your account to use zsh, please run `chsh -s /bin/zsh`.
For more details, please visit https://support.apple.com/kb/HT208050.
Sudeshnas-MacBook-Air:~ sudeshnabhushan$ cd Desktop/3rd_SEM
Sudeshnas-MacBook-Air:3rd_SEM sudeshnabhushan$ javac week2_4.java
Sudeshnas-MacBook-Air:3rd_SEM sudeshnabhushan$ java week2_4
The grade of student
CIE grade
C

SEE grade
BSudeshnas-MacBook-Air:3rd_SEM sudeshnabhushan$
```

Q5.

```
class week2_5
{
    public static void main (String[] args)
    {
        int i =0;
        int num =0;
        String primeNumbers = "";

        for (i = 1; i <= 100; i++)
        {
            int counter=0;
            for(num =i; num>=1; num--)
            {
                if(i%num==0)
                {
                    counter = counter + 1;
                }
            }
            if (counter ==2)
            {
                primeNumbers = primeNumbers + i + " ";
            }
        }
    }
}
```

```

    }
    System.out.println("Prime numbers from 1 to 100 are :");
    System.out.println(primeNumbers);
}
}

```

The screenshot shows a terminal window titled "3rd_SEM — -bash — 80x24". The terminal output is as follows:

```

Last login: Sat Sep 26 19:22:55 on ttys000

The default interactive shell is now zsh.
To update your account to use zsh, please run `chsh -s /bin/zsh`.
For more details, please visit https://support.apple.com/kb/HT208050.
[Sudeshnas-MacBook-Air:~ sudeshnabhushan$ cd Desktop/3rd_SEM
[Sudeshnas-MacBook-Air:3rd_SEM sudeshnabhushan$ javac week2_5.java
[Sudeshnas-MacBook-Air:3rd_SEM sudeshnabhushan$ java week2_5
Prime numbers from 1 to 100 are :
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97
Sudeshnas-MacBook-Air:3rd_SEM sudeshnabhushan$ █

```

Q6.

```

#include <stdio.h>
#include<math.h>
void main ()
{
    float area,volume,h,rad;
    int choice,y=0,a;
    while(y==0)
    {
        printf("1 for area and volume of cylinder\n");
        printf("2 for area and volume of cone\n");
        printf("3 for area and volume of sphere\n");
        printf("Input your choice : ");
        scanf("%d",&choice);
        switch(choice)
        {

```

```

case 1:
    printf("Enter radius and height : ");
    scanf("%f",&rad);
    scanf("%f",&h);
    area=2*3.14*rad*(rad+h);
    volume=3.14*rad*rad*h;
    break;
case 2:
    printf("Enter radius and height : ");
    scanf("%f",&rad);
    scanf("%f",&h);
    volume=(3.14*rad*rad*h)/3;
    area=(22 / 7) * rad * (rad + sqrt(rad * rad + h * h));
    break;

case 3:
    printf("Enter radius and height : ");
    scanf("%f",&rad);
    scanf("%f",&h);
    volume=(4*3.14*rad*rad*rad)/3;
    area=4*3.14*rad*rad;
    break;

default:
    printf("option not available\n");
    break;
}

printf("The area is : %f\n",area);
printf("The volume is : %f\n",volume);

printf("\n Enter 0 to exit and 1 to continue\n");
scanf("%d",&a);
if(a==0)
{
    y=1;
}
else if(a==1)
{
    y=0;
}
}
}

```

```

1 for area and volume of cylinder
2 for area and volume of cone
3 for area and volume of sphere
Input your choice : 2
Enter radius and height : 2 5
The area is : 44.310989
The volume is : 20.933332

Enter 0 to exit and 1 to continue
0

...Program finished with exit code 0
Press ENTER to exit console.

```

Q7.

```

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

```

```

int main()
{
    int a,stu[1000],n,s1[500],s2[500],s3[500],i,i1=0,i2=0,i3=0,a1,a2,a3,j,k,l,x,y,z,x1,y1,z1,x2,y2,z2;
    printf("Enter number of students: ");
    scanf("%d",&n);
    for(i=0;i<n;i++)
    {
        printf("\n\nEnter your id: ");
        scanf("%d",&stu[i]);
        printf("1-Internet of Things\n2-Advanced Java and J2EE\n3-Advanced Data Structures\n");
        printf("Choose from the above electives: ");
        scanf("%d",&a);
        switch(a)
        {
            case 1:
                s1[i1]=stu[i];
                i1++;
                printf("Number of students for elective 1 till now: %d",i1);
                break;
            case 2:

```

```

        s2[i2]=stu[i];
        i2++;
        printf("Number of students for elective 2 till now: %d",i2);
        break;
    case 3:
        s3[i3]=stu[i];
        i3++;
        printf("Number of students for elective 3 till now: %d",i3);
        break;
    default:
        printf("Enter valid choice");
        break;
    }
}
printf("\nTotal number of students in each elective is\n1-%d\n2-%d\n3-%d\n",i1,i2,i3);
printf("\nStudents in elective 1 are-");
for(x=0;x<i1;x++)
{
    printf("%d\n",s1[x]);
}
printf("\nStudents in elective 2 are-");
for(y=0;y<i2;y++)
{
    printf("%d\n",s2[y]);
}
printf("\nStudents in elective 3 are-");
for(z=0;z<i3;z++)
{
    printf("%d\n",s3[z]);
}
if(i1<30)
{
    printf("\nInternet of Things will not be floated due to lack of students\nPlease choose from
the remaining two electives-");
    for(j=0;j<i1;j++)
    {
        printf("Student with id %d please choose",s1[j]);
        printf("\n1-Advanced Java and J2EE\n2-Advanced Data Structures\n");
        scanf("%d",&a1);
        switch(a1)
        {
            case 1:
                s2[i2]=s1[j];
                i2++;

```

```

        break;
    case 2:
        s3[i3]=s1[j];
        i3++;
        break;
    default:
        printf("Enter valid choice");
        break;
    }
}
printf("\nNow total students in each elective\n1-%d\n2-%d\n",i2,i3);
printf("\nStudents in elective 1 are-");
for(y2=0;y2<i2;y2++)
{
    printf("%d\n",s2[y2]);
}
printf("\nStudents in elective 2 are-");
for(z1=0;z1<i3;z1++)
{
    printf("%d\n",s3[z]);
}
}
else if(i2<30)
{
    printf("\nAdvanced Java and J2EE will not be floated due to lack of students\nPlease
choose from the remaining two electives-");
    for(k=0;k<i1;k++)
    {
        printf("Student with id %d please choose",s2[k]);
        printf("\n1-Internet of Things\n2-Advanced Data Structures\n");
        scanf("%d",&a2);
        switch(a2)
        {
            case 1:
                s1[i1]=s2[k];
                i1++;
                break;
            case 2:
                s3[i3]=s2[k];
                i3++;
                break;
            default:
                printf("Enter valid choice");
                break;
        }
    }
}

```



```

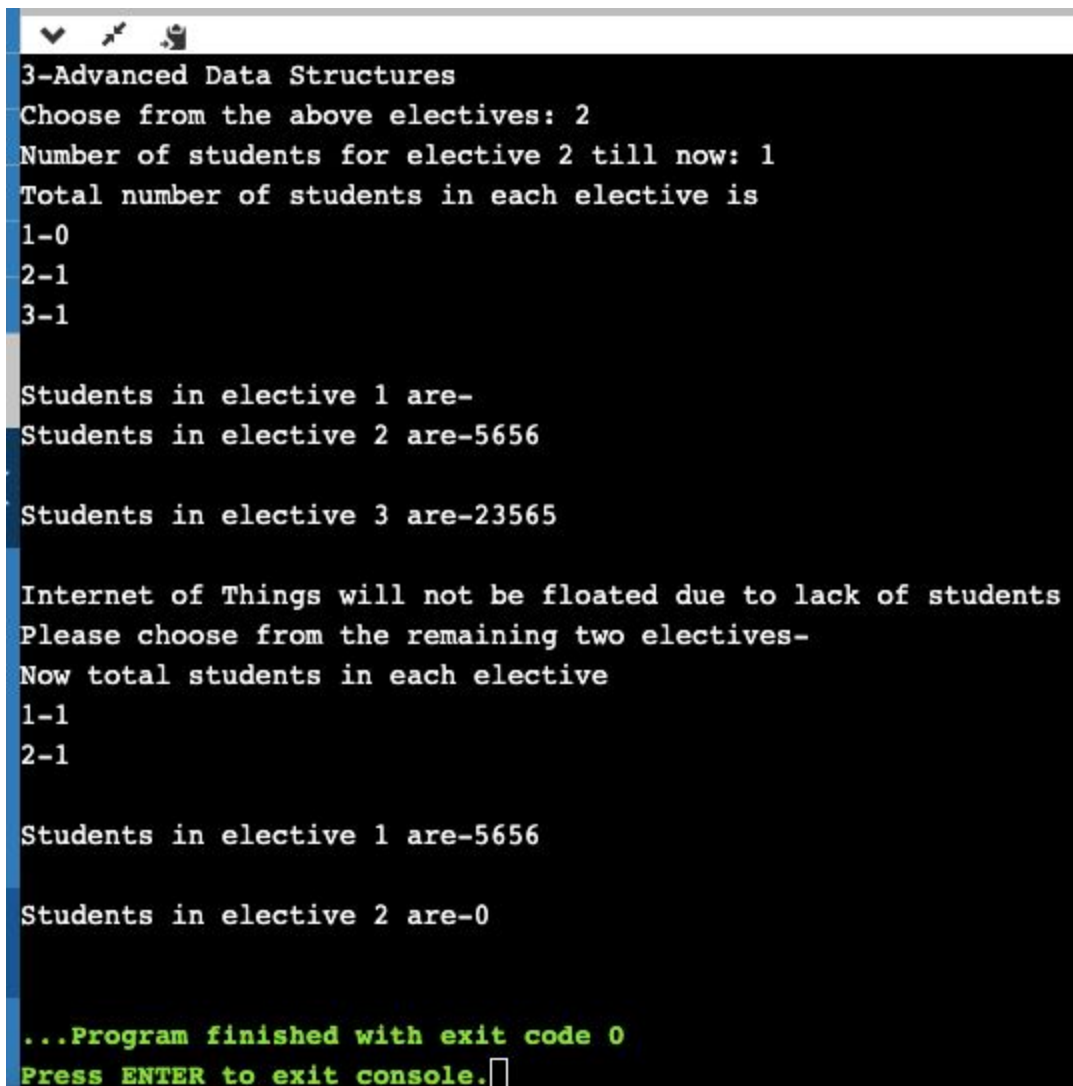
    }
}
printf("\nNow total students in each elective\n1-%d\n2-%d\n",i1,i3);
printf("\nStudents in elective 1 are-");
for(x2=0;x2<i1;x2++)
{
    printf("%d\n",s1[x2]);
}
printf("\nStudents in elective 2 are-");
for(z2=0;z2<i3;z2++)
{
    printf("%d\n",s3[z2]);
}
}
else if(i3<30)
{
    printf("\nAdvanced Data Structures will not be floated due to lack of students\nPlease
choose from the remaining two electives-");
    for(l=0;l<i1;l++)
    {
        printf("Student with id %d please choose",s3[l]);
        printf("\n1-Internet of Things\n2-Advanced Java and J2EE\n");
        scanf("%d",&a3);
        switch(a3)
        {
            case 1:
                s1[i1]=s3[l];
                i1++;
                break;
            case 2:
                s2[i2]=s2[l];
                i2++;
                break;
            default:
                printf("Enter valid choice");
                break;
        }
    }
}
printf("\nNow total number of students in each elective\n1-%d\n2-%d\n",i1,i2);
printf("\nStudents in elective 1 are-");
for(x1=0;x1<i1;x1++)
{
    printf("%d\n",s1[x1]);
}

```

```

        printf("\nStudents in elective 2 are-");
        for(y1=0;y1<i2;y1++)
        {
            printf("%d\n",s2[y1]);
        }
    }
    return 0;
}

```



```

3-Advanced Data Structures
Choose from the above electives: 2
Number of students for elective 2 till now: 1
Total number of students in each elective is
1-0
2-1
3-1

Students in elective 1 are-
Students in elective 2 are-5656

Students in elective 3 are-23565

Internet of Things will not be floated due to lack of students
Please choose from the remaining two electives-
Now total students in each elective
1-1
2-1

Students in elective 1 are-5656

Students in elective 2 are-0

...Program finished with exit code 0
Press ENTER to exit console.

```