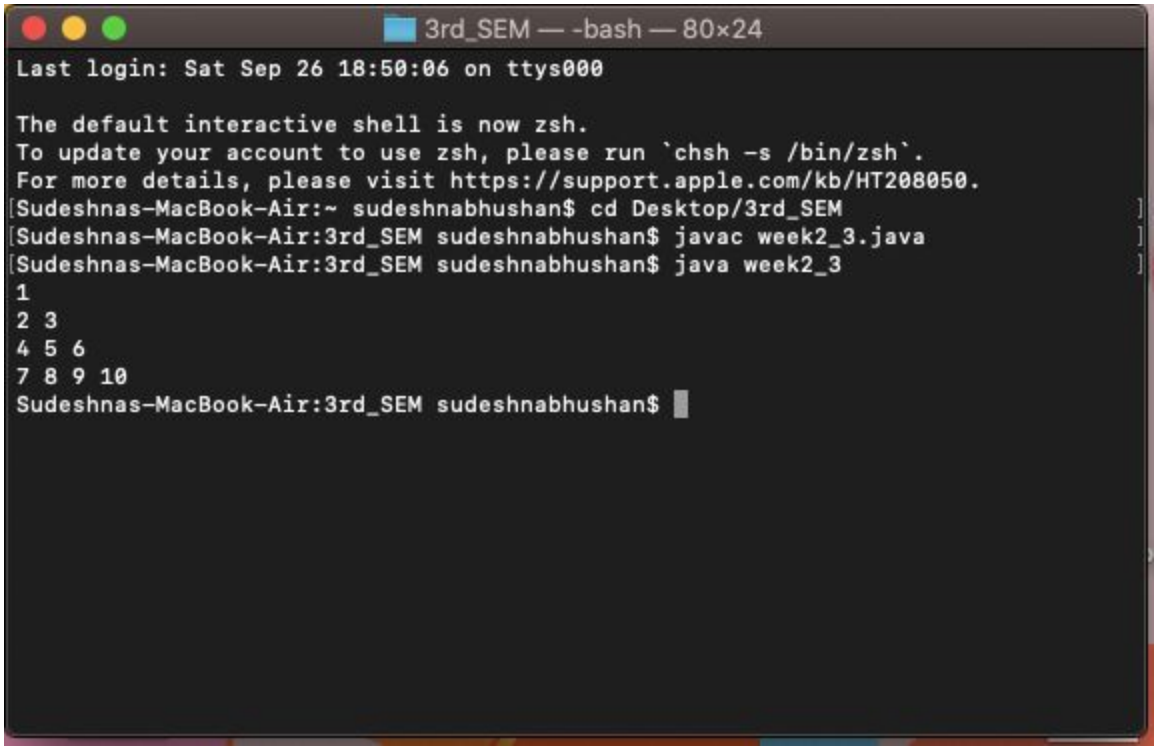
Q3.

```
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();
			}
	}

}
```

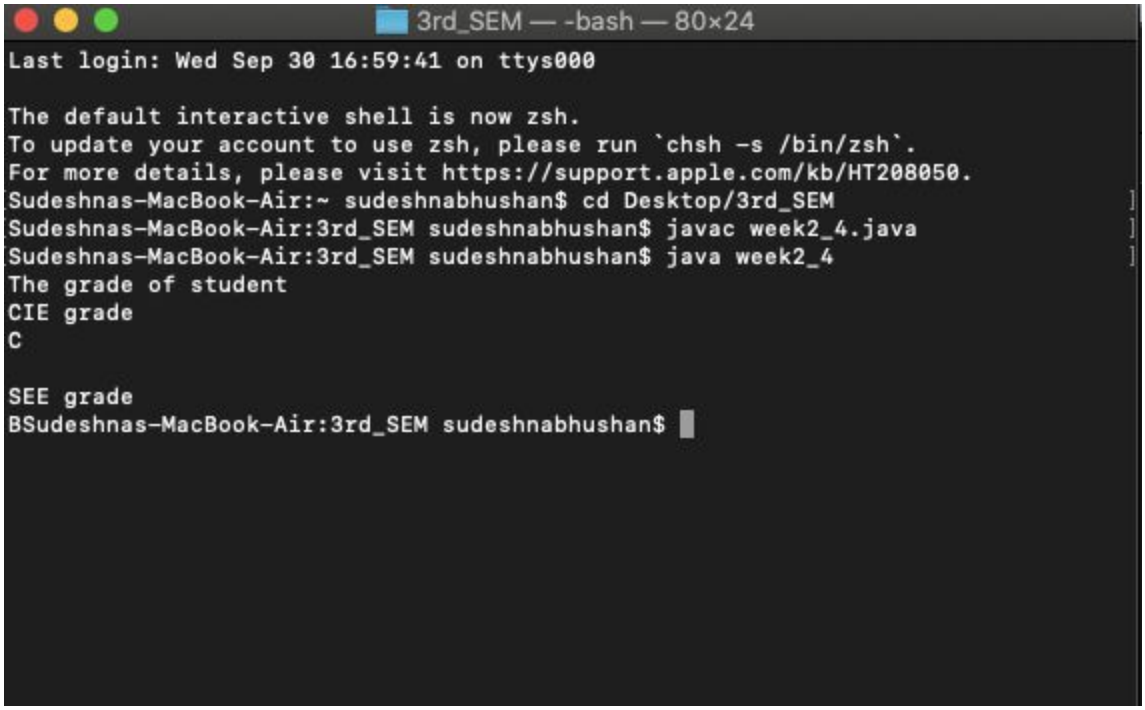


Q4.

```
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");
	}
}
```

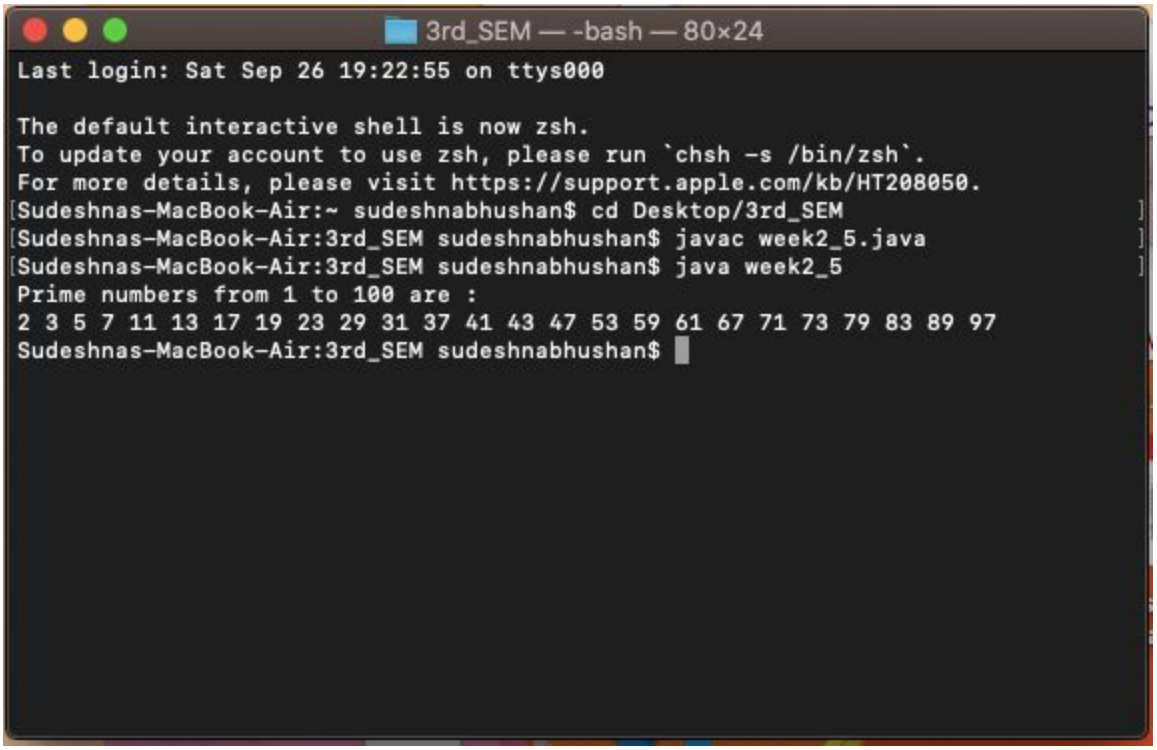


Q5.

```
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);
    }
}
```



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)
    {
```

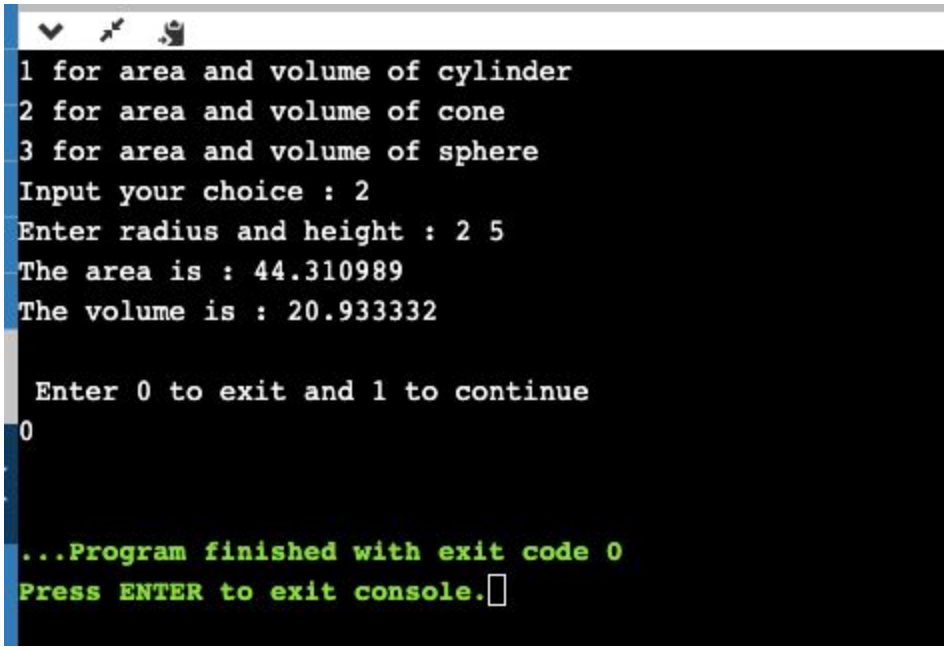
```
        case 1:
            printf("Enter radius and height : ");
            scanf("%f",&rad);
            scanf("%f",&h);
            area=2*3.14*rad*(rad+h);
            volume=3.14*rad*rad*h;
            break;
        case 2:
            printf("Enter radius and height : ");
            scanf("%f",&rad);
            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;
      }
}
}
```



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\2-%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;
}
```