IMPORTANT PROGRAMS FOR PLACEMENT – SET 2 SOLUTIONS

1)

```c
#include<stdio.h>
 int main()
 {
    int i, isPrime,start,end, n;
    printf("Enter Start : ");
    scanf("%d", &start);
    printf("\nEnter end : ");
    scanf("%d", &end);

    for(n=start; n<=end; n++)
    {
            isPrime = 1;
            for(i=2; i<n/2; i++)
            if(n%i == 0)
            {
             isPrime = 0;
             break;
            }
            if(isPrime)
            printf("\t%d", n);
    }
 }
```

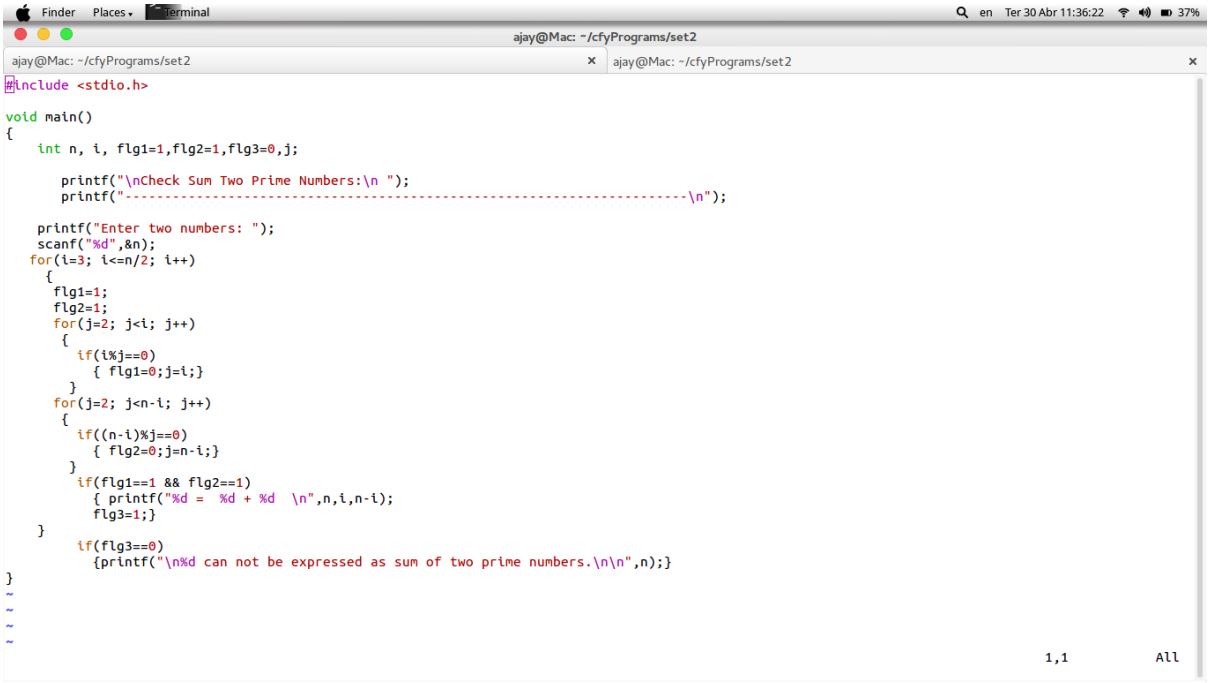
2)

```c
#include<stdio.h>
int isArmStrong(int number)
{
    int remainder=0,result=0;
    int originalNumber = number;

        while (originalNumber != 0)
        {
            remainder = originalNumber%10;
            result += remainder*remainder*remainder;
            originalNumber /= 10;
        }

    if(result == number)
        return 1;
    else
        return 0;
}
int main()
{
    int start,end,n,i;
    printf("enter start of range: ");
    scanf("%d",&start);
    printf("enter end of range: ");
    scanf("%d",&end);
    for(i=start;i<=end;i++)
    {
        if(isArmStrong(i))
        printf("%d, ",i);
    }
}
```

3)



4)

```c
#include<stdio.h>

int replace(int num)
{
    if (num == 0)
        return 0;
    int digit = num % 10;
    if (digit == 0)
        digit = 1;
    return replace(num/10) *
                        10 + digit;
}


int main()
{
    int num = 0;
    printf("enter number: ");
    scanf("%d",&num);
    printf("%d",replace(num));
    return 0;
}
```

5)

```c
#include <stdio.h>
void main()
{
    int i,j,n;
    printf("enter value for depth: ");
    scanf("%d",&n);
        for (i=0; i<n; i++)
        {
            for (j=n-i; j>1; j--)
            {
                printf(" ");
            }
            for (j=0; j<=i; j++ )
            {
                printf("* ");
            }
            printf("\n");
        }
}
~
```

6)

```c
#include <stdio.h>
void main()
{
    int i,j,n;
    printf("enter value for depth: ");
    scanf("%d",&n);
        for (i=0; i<n; i++)
        {
            for (j=n-i; j>1; j--)
            {
                printf(" ");
            }
            for (j=0; j<=i; j++ )
            {
                printf("%d ",i+1);
            }
            printf("\n");
        }
}
```

7)

```c
#include<stdio.h>

int main()
{
   int i, j, rows, count=0;

   printf("Enter the number of rows\n");
   scanf("%d", &rows);

   for (i = 1; i <= 2*rows; i=i+2) {
      for (j = 1; j <= i; j++) {
       printf("%c", 'A'+count);
       if(j <= i/2)
           count++;
        else
           count--;
      }
      count = 0;
      printf("\n");
   }
   return(0);
}
```

8)

```c
#include<stdio.h>

int maxHandshake(int n)
{
  return (n * (n - 1))/ 2;
}

int main()
{
    int n;
    printf("Enter number of people: ");
    scanf("%d",&n);
    printf("%d",maxHandshake(n));

  return 0;
}
```

9)

```c
#include <stdio.h>

void main()
{
    int x, y;

    printf("Enter the values for X and Y\n");
    scanf("%d %d", &x, &y);
    if (x > 0 && y > 0)
        printf("point (%d, %d) lies in the First quandrant\n");
    else if (x < 0 && y > 0)
        printf("point (%d, %d) lies in the Second quandrant\n");
    else if (x < 0 && y < 0)
        printf("point (%d, %d) lies in the Third quandrant\n");
    else if (x > 0 && y < 0)
        printf("point (%d, %d) lies in the Fourth quandrant\n");
    else if (x == 0 && y == 0)
        printf("point (%d, %d) lies at the origin\n");
}
```

10)

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

void convert(char *num)
{
    int len = strlen(num);
    if (len == 0) {
        fprintf(stderr, "empty string\n");
        return;
    }
    if (len > 4) {
        fprintf(stderr, "Length more than 4 is not supported\n");
        return;
    }
    char *single_digits[] = { "zero", "one", "two",
                              "three", "four","five",
                              "six", "seven", "eight", "nine"};

    char *two_digits[] = {"", "ten", "eleven", "twelve",
                              "thirteen", "fourteen",
                              "fifteen", "sixteen",
                              "seventeen", "eighteen", "nineteen"};

    char *tens_multiple[] = {"", "", "twenty", "thirty", "forty", "fifty",
                             "sixty", "seventy", "eighty", "ninety"};

    char *tens_power[] = {"hundred", "thousand"};

    printf("\n%s: ", num);

    if (len == 1) {
        printf("%s\n", single_digits[*num - '0']);
        return;
    }
```

PROGRAM IS CONTNUED ON NEXT PAGE

10) PROGRAM CONTINUED FROM PREVIOUS PAGE

```
    while (*num != '\0') {

        if (len >= 3) {
            if (*num -'0' != 0) {
                printf("%s ", single_digits[*num - '0']);
                printf("%s ", tens_power[len-3]);
            }
            --len;
        }
        else {
            if (*num == '1') {
                int sum = *num - '0' + *(num + 1)- '0';
                printf("%s\n", two_digits[sum]);
                return;
            }

            else if (*num == '2' && *(num + 1) == '0') {
                printf("twenty\n");
                return;
            }

            else {
                int i = *num - '0';
                printf("%s ", i? tens_multiple[i]: "");
                ++num;
                if (*num != '0')
                    printf("%s ", single_digits[*num - '0']);
            }
        }
        ++num;
    }
}

int main()
{
    char num[512];
    printf("enter number: ");
    scanf("%s",num);
    convert(num);
    return 0;
}
```

11)

```c
#include <stdio.h>

int main()
{
    int month;
    printf("Enter month number (1-12): ");
    scanf("%d", &month);


    if(month == 1)
    {
        printf("31 days");
    }
    else if(month == 2)
    {
        printf("28 or 29 days");
    }
    else if(month == 3)
    {
        printf("31 days");
    }
    else if(month == 4)
    {
        printf("30 days");
    }
    else if(month == 5)
    {
        printf("31 days");
    }
    else if(month == 6)
    {
        printf("30 days");
    }
    else if(month == 7)
    {
        printf("31 days");
    }
    else if(month == 8)
    {
        printf("31 days");
    }
```

```c
    else if(month == 9)
    {
        printf("30 days");
    }
    else if(month == 10)
    {
        printf("31 days");
    }
    else if(month == 11)
    {
        printf("30 days");
    }
    else if(month == 12)
    {
        printf("31 days");
    }
    else
    {
        printf("Invalid input! Please enter month number between (1-12).");
    }

    return 0;
}
```

12)

```c
#include<stdio.h>

int fact(long int x)
{
    long int f=1,i;
    for(i=1;i<=x;i++)
    {
    f=f*i;
    }
    return f;
}

int main()
{
    long int n,r,p,temp;
    long int num,den;
    printf("\nEnter the number of seats available : ");
    scanf("%ld",&r);
    printf("\nEnter the number of persons : ");
    scanf("%ld",&n);

    if(n < r)
    {
    temp=n;
    n=r;
    r=temp;
    }
    num=fact(n);
    den=fact(n-r);
    p=num/den;
    printf("\nNumber of ways people can be seated : ");
    printf("%ld\n",p);
}
```

13)

```c
#include <stdio.h>

void main()
{
    int  num, binary, decimal = 0, base = 1, rem;

    printf("Enter a binary number\n");
    scanf("%d", &num);
    binary = num;
    while (num > 0)
    {
        rem = num % 10;
        decimal = decimal + rem * base;
        num = num / 10 ;
        base = base * 2;
    }
    printf("decimal number: %d \n", decimal);
}
```

14)

```c
#include<stdio.h>
int main()
{
    int binaryNum[32];
    int n,j;
    printf("Enter Decimal Number");
    scanf("%d",&n);
    int i = 0;
    while (n > 0) {

        binaryNum[i] = n % 2;
        n = n / 2;
        i++;
    }

    for (j = i - 1; j >= 0; j--)
        printf("%d",binaryNum[j]);

    return 0;
}
```

15)

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

int main()
{
    int binaryNumber;

    printf("Enter a binary number: ");
    scanf("%d", &binaryNumber);

    int octalNumber = 0, i = 0;
    while(binaryNumber != 0)
    {
        octalNumber += (binaryNumber%10) * pow(2,i);
        ++i;
        binaryNumber/=10;
    }

    printf("%d in binary = %d in octal", binaryNumber, octalNumber);

    return 0;
}
```

16)

```c
#include<stdio.h>
int main()
{
    int binaryNum[32];
    int n,j;
    printf("Enter Octal Number");
    scanf("%d",&n);
    int i = 0;
    while (n > 0) {

        binaryNum[i] = n % 8;
        n = n / 8;
        i++;
    }

    for (j = i - 1; j >= 0; j--)
        printf("%d",binaryNum[j]);

    return 0;
}
```

17)

```c
#include <stdio.h>

int main()
{
    int decimalnum, remainder, quotient;
    int octalNumber[100], i = 1, j;

    printf("Enter the decimal number: ");
    scanf("%d", &decimalnum);
    quotient = decimalnum;
    while (quotient != 0)
    {
        octalNumber[i++] = quotient % 8;
        quotient = quotient / 8;
    }
    printf("octal value of decimal no %d: ", decimalnum);
    for (j = i - 1; j > 0; j--)
        printf("%d", octalNumber[j]);
    return 0;
}
```

18)

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

int main()
{

    long int octal, decimal = 0;
    int i = 0;

    printf("Enter any octal number: ");
    scanf("%ld", &octal);
    while (octal != 0)
    {
        decimal =  decimal +(octal % 10)* pow(8, i++);
        octal = octal / 10;
    }
    printf("Equivalent decimal value: %ld",decimal);
    return 0;
}
```

19)

```c
#include <stdio.h>

int number0f3s(int n)
{
    int count = 0;
    while (n > 0)
    {
        if (n % 10 == 2)
            count++;

        n = n / 10;
    }
    return count;
}
int numberOf3sinRange(int n)
{
    int i;
    int count = 0 ;
    for (i = 2; i <= n; i++)
        count += number0f3s(i);

    return count;
}

int main()
{
    int n;
    printf("enter range end:");
    scanf("%d",&n);
    printf("%d",numberOf3sinRange(n));
    return 0;
}
```

20)

```
#include <stdio.h>
int numberOfDivisors(int num)
{
    int c = 0;
    for (int i = 1; i <= num; i++) {
        if (num % i == 0) {
            c += 1;
        }
    }
    return c;
}
int countNumbers(int n)
{
    int c = 0;
    for (int i = 1; i <= n; i++) {
        if (numberOfDivisors(i) == 9)
            c += 1;
    }
    return c;
}

int main()
{

    int n;
    printf("Enter Number");
    scanf("%d",&n);
    cout << countNumbers(n);

return 0;
}
```

21)

```
#include <stdio.h>
#include <math.h>

int main()
{
   int a, b, c, d;
   double root1, root2;

   printf("Enter a, b and c where a*x*x + b*x + c = 0\n");
   scanf("%d%d%d", &a, &b, &c);

   d = b*b - 4*a*c;

   if (d < 0) { //complex roots
     printf("First root = %.2lf + j%.2lf\n", -b/(double)(2*a), sqrt(-d)/(2*a));
     printf("Second root = %.2lf - j%.2lf\n", -b/(double)(2*a), sqrt(-d)/(2*a));
   }
   else { //real roots
      root1 = (-b + sqrt(d))/(2*a);
      root2 = (-b - sqrt(d))/(2*a);

      printf("First root = %.2lf\n", root1);
      printf("Second root = %.2lf\n", root2);
   }

   return 0;
}
```

22)

```
#include<stdio.h>

int main()
{
    int r,c;
    int i,j;
    printf("enter number of rows and columns:");
    scanf("%d %d",&r,&c);
    for(i=0;i<r;i++)
    {
        for(j=0;j<c;j++)
        {
            if(i==0 || i==r-1||j==0||j==c-1)
            {
                printf("*");
            }
            else
            {
                printf(" ");
            }
        }
        printf("\n");
    }
    return 0;
}
```

22_ SOLID)

```c
#include<stdio.h>

int main()
{
    int r,c;
    int i,j;
    printf("enter number of rows and columns:");
    scanf("%d %d",&r,&c);
    for(i=0;i<r;i++)
    {
        for(j=0;j<c;j++)
        {
                printf("*");
        }
        printf("\n");
    }
    return 0;
}
~
~
~
"22_solid.c" 18L, 219C
```

23)

```c
#include<stdio.h>

void main()
{
    int n,i,j;
    printf("enter value for n");
    scanf("%d",&n);
    int space = n - 1;

    for (i = 0; i < n; i++)
    {
        for (j = 0;j < space; j++)
            printf(" ");

        for (j = 0;j <= i; j++)
            printf("* ");

        printf("\n");
        space--;
    }

    space = 0;

    for (i = n; i > 0; i--)
    {
        for (j = 0; j < space; j++)
            printf(" ");
        for (j = 0;j < i;j++)
            printf("* ");

        printf("\n");
        space++;
    }
}
```

24)

```c
#include<stdio.h>

void main()
{
    int n,i,j;
    printf("enter value for n");
    scanf("%d",&n);
    int space = n - 1;

    for (i = 0; i < n; i++)
    {
        for (j = 0;j < space; j++)
            printf(" ");

        for (j = 0;j <= i; j++)
            printf("%d ",i+1);

        printf("\n");
        space--;
    }

    space = 0;

    for (i = n; i > 0; i--)
    {
        for (j = 0; j < space; j++)
            printf(" ");
        for (j = 0;j < i;j++)
            printf("%d ",i);

        printf("\n");
        space++;
    }
}
```

25)

```c
#include <stdio.h>

int main()
{
  int n, i,  c, a = 1;

  printf("Enter the number of rows of Floyd's triangle to print\n");
  scanf("%d", &n);

  for (i = 1; i <= n; i++)
  {
    for (c = 1; c <= i; c++)
    {
      printf("%d ",a);
      a++;
    }
    printf("\n");
  }

  return 0;
}
```

26)

```c
#include <stdio.h>

int main()
{
    int n,line,i;
    printf("enter value of n");
    scanf("%d",&n);
    int arr[n][n];

    for (line = 0; line < n; line++)
    {
        for (i = 0; i <= line; i++)
        {
        if (line == i || i == 0)
            arr[line][i] = 1;
        else
            arr[line][i] = arr[line - 1][i - 1] +
                           arr[line - 1][i];
        printf ("%d ",arr[line][i]);
        }
        printf("\n");
    }
    return 0;
}
```