1. Define a function to input variable length string and store it in an array without memory wastage.

Ans #include<stdio.h>

int main()

{

char \*str,c;

int i=0,j=1;

str=(char\*)malloc(sizeof(char));

printf("Enetr the string : ");

while(c!='\n')

{

c=getc(stdin);

j++;

str=(char\*)realloc(str,j \* sizeof(char));

str[i]=c;

i++;

}

str[i]='\0';

printf("The Entered String is : %s",str);

free(str);

return 0;

}

2. Write a program to ask the user to input a number of data values he would like to enter then create an array dynamically to accommodate the data values. Now take the input from the user and display the average of data values.

Ans #include<stdio.h>

int main()

{

int \*ptr;

int i,size=0,sum=0;

printf ("Enter the size of array : ");

scanf("%d",&size);

ptr=(int\*)calloc(size,sizeof(int));

if(ptr==NULL)

{

printf("Memory Allocation Failed");

return 0;

}

printf("\nEnter %d values : ",size);

for(i=0;i<size;i++)

{

scanf("%d",ptr+i);

}

for(i=0;i<size;i++)

{

sum= (sum + \*(ptr+i));

}

printf("\nAverage is %d",sum/size);

free(ptr);

return 0;

}

3. Write a program to calculate the sum of n numbers entered by the user using malloc and free.

Ans #include<stdio.h>

int main()

{

int \*ptr;

int i,size=0,sum=0;

printf ("Enter the size of array : ");

scanf("%d",&size);

ptr=(int\*)malloc(size \* sizeof(int));

if(ptr==NULL)

{

printf("Memory Allocation Failed");

return 0;

}

printf("\nEnter %d values : ",size);

for(i=0;i<size;i++)

{

scanf("%d",ptr+i);

}

for(i=0;i<size;i++)

{

sum= (sum + \*(ptr+i));

}

printf("\nSum is %d",sum);

free(ptr);

return 0;

}

4. Write a program to input and print text using dynamic memory allocation.

Ans #include<stdio.h>

int main()

{

char \*str,c;

int i=0,j=1;

str=(char\*)malloc(sizeof(char));

printf("Enetr the string : ");

while(c!='\n')

{

c=getc(stdin);

j++;

str=(char\*)realloc(str,j \* sizeof(char));

str[i]=c;

i++;

}

str[i]='\0';

printf("The Entered String is : %s",str);

free(str);

return 0;

}

5. Write a program to read a one dimensional array, print sum of all elements along with inputted array elements using dynamic memory allocation.

Ans #include<stdio.h>

int main()

{

int \*ptr;

int i,size=0,sum=0;

printf ("Enter the size of array : ");

scanf("%d",&size);

ptr=(int\*)malloc(size \* sizeof(int));

if(ptr==NULL)

{

printf("Memory Allocation Failed");

return 0;

}

printf("\nEnter %d values : ",size);

for(i=0;i<size;i++)

{

scanf("%d",ptr+i);

}

for(i=0;i<size;i++)

{

sum= (sum + \*(ptr+i));

}

printf("\nSum is %d",sum);

free(ptr);

return 0;

}

6. Write a program in C to find the largest element using Dynamic Memory Allocation.

Ans

7. Write a program to demonstrate memory leak in C.

Ans

8. Write a program to demonstrate dangling pointers in C.

Ans

9. Write a program to allocate memory dynamically of the size in bytes entered by the user. Also handle the case when memory allocation is failed.

Ans #include<stdio.h>

int main()

{

int \*ptr;

int i,size=0,sum=0;

printf ("Enter the size of array : ");

scanf("%d",&size);

ptr=(int\*)malloc(size \* sizeof(int));

if(ptr==NULL)

{

printf("Memory Allocation Failed");

return 0;

}

10. Find out the maximum and minimum from an array using dynamic memory allocation in C

Ans