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# **Assignments**

| 1. Accept a char input from the user and display it on the console. |
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| *#include <stdio.h>*  *#include <stdlib.h>*  *int main(){*  *char CharInput;*  *printf("Enter a character : ");*  *scanf("%c",&CharInput);*  *printf("%c",CharInput);*  *return 0;*  *}* |
| 1. Accept two inputs from the user and output its sum.  | **Variable** | **Data Type** | | --- | --- | | Number 1 | Integer | | Number 2 | Float | | Sum | Float | |
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| *#include <stdio.h>*  *#include <stdlib.h>*  *int main(){*  *int Number1;*  *float Number2,sum;*  *printf("Enter a Integer number : ");*  *scanf("%d",&Number1);*  *printf("Enter a float Number : ");*  *scanf("%f",&Number2);*  *sum=Number1+Number2;*  *printf("%.2f",sum);*  *return 0;*  *}* |
| 1. Write a program to find the simple interest.    1. The program should accept 3 inputs from the user and calculate simple interest for the given inputs. Formula: SI=(P\*R\*n)/100)  | **Variable** | **Data Type** | | --- | --- | | Principal amount (P) | Integer | | Interest rate (R) | Float | | Number of years (n) | Float | | Simple Interest (SI) | Float | |
| #include <stdio.h>  #include <stdlib.h>  int main()  {  int PrincipalAmount;  float IntrestRate,NoOfYears,SI;  printf("Enter the Principle Amount : ");  scanf("%d",&PrincipalAmount);  printf("Enter Intrest Rate and Number of Years : ");  scanf("%f%f",&IntrestRate,&NoOfYears);  SI=(PrincipalAmount\*IntrestRate\*NoOfYears)/100;  printf("The Simple Rate is : %f",SI);  return 0;  } |
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| 1. Write a program to check whether a student has passed or failed in a subject after he or she enters their mark (pass mark for a subject is 50 out of 100). 2. The program should accept input from the user and output a message as “Passed” or “Failed.”  | **Variable** | **Data type** | | --- | --- | | mark | float | |
|  |
| *#include <stdio.h>*  *#include <stdlib.h>*  *int main()*  *{*  *float MarkOfStudent;*  *printf("Enter the mark student in total of 100 : ");*  *scanf("%f",&MarkOfStudent);*  *if(MarkOfStudent>=50){*  *printf("Student is passed in exam ");*  *}else{*  *printf("Student is failed in exam ");*  *}*  *return 0;*  *}* |
| 1. Write a program to show the grade obtained by a student after they enter their total mark percentage. 2. The program should accept input from the user and display their grade as follows  | **Mark** | **Grade** | | --- | --- | | > 90 | A | | 80-89 | B | | 70-79 | C | | 60-69 | D | | 50-59 | E | | < 50 | Failed |  | **Variable** | **Data type** | | --- | --- | | Total mark | float | |
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| #include <stdio.h>  #include <stdlib.h>  int main()  {  float TotalMark;  printf("Enter the percentage of mark student : ");  scanf("%f",&TotalMark);  if(TotalMark<=100){  if(TotalMark>=90){  printf("your grade is : A");  }else if(TotalMark >=80 && TotalMark < 90){  printf("your grade is : B");  }else if(TotalMark >=70 && TotalMark < 80){  printf("your grade is : C");  }else if(TotalMark >=60 && TotalMark < 70){  printf("your grade is : D");  }else if(TotalMark >=50 && TotalMark < 60){  printf("your grade is : E");  }else if(TotalMark<50){  printf("your are failed ");  }  }  else{  printf("Enter a valid Number ");  }    return 0;  } |
| 1. Using the ‘switch case,’ write a program to accept an input number from the user and output the day as follows.  | **Input** | **Output** | | --- | --- | | 1 | Sunday | | 2 | Monday | | 3 | Tuesday | | 4 | Wednesday | | 5 | Thursday | | 6 | Friday | | 7 | Saturday | | Any other input | Invalid Entry | |
| #include <stdio.h>  #include <stdlib.h>  int main()  {  int NumberOfDay;  printf("Enter a number between 1 and 7 \nto show corresponding day : ");  scanf("%d",&NumberOfDay);  switch(NumberOfDay)  {  case 1:  printf("sunday");  break;    case 2:  printf("monday");  break;    case 3:  printf("tuesday");  break;    case 4:  printf("wednesday");  break;    case 5:  printf("thursday");  break;    case 6:  printf("friday");  break;    case 7:  printf("saturday");  break;    default :  printf("Invalid Entry");    }    return 0;  } |
| 1. Write a program to print the multiplication table of given numbers. 2. Accept input from the user and display its multiplication table   E.g.:  **Output**: Enter a number  **Input**: 5  **Output**:  1 x 5 = 5  2 x 5 = 10  3 x 5 = 15  4 x 5 = 20  5 x 5 = 25  6 x 5 = 30  7 x 5 = 35  8 x 5 = 40  9 x 5 = 45  10 x 5 = 50 |
| *#include <stdio.h>*  *#include <stdlib.h>*  *int main()*  *{*  *int num,result;*  *printf("Enter a number : ");*  *scanf("%d",&num);*  *for(int i=1;i<=10;i++)*  *{*  *result=i\*num;*  *printf("%d x %d = %d \n",i,num,result);*  *}*  *return 0;*  *}* |
| 1. Write a program to find the sum of all the odd numbers for a given limit 2. Program should accept an input as limit from the user and display the sum of all the odd numbers within that limit   For example if the input limit is 10 then the result is 1+3+5+7+9 = 25  **Output**: Enter a limit  **Input**: 10  **Output**: Sum of odd numbers = 25 |
|  |
| *#include <stdio.h>*  *#include <stdlib.h>*  *int main()*  *{*  *int num,result;*  *printf("Enter a limit : ");*  *scanf("%d",&num);*  *result=0;*  *for(int i=1;i<=num;i=i+2)*  *{*    *result+=i;*    *}*  *printf("sum of odd number = %d",result);*  *return 0;*  *}* |
| 1. Write a program to print the following pattern (**hint**: use nested loop)   1  1 2  1 2 3  1 2 3 4  1 2 3 4 5 |
| *#include <stdio.h>*  *#include <stdlib.h>*  *int main()*  *{*  *int num;*  *printf("Enter a limit : ");*  *scanf("%d",&num);*  *for(int i=1;i<=num;i++){*  *for(int j=1;j<=i;j++){*  *printf("%d ",j);*  *}*  *printf("\n");*  *}*  *return 0;*  *}* |
| 1. Write a program to interchange the values of two arrays. 2. Program should accept an array from the user, swap the values of two arrays and display it on the console   Eg: **Output**: Enter the size of arrays  **Input**: 5  **Output**: Enter the values of Array 1  **Input**: 10, 20, 30, 40, 50  **Output**: Enter the values of Array 2  **Input**: 15, 25, 35, 45, 55  **Output**: Arrays after swapping:  Array1: 15, 25, 35, 45, 55  Array2: 10, 20, 30, 40, 50 |
| #include <stdio.h>  #include <stdlib.h>  int main()  {  int num,temp;  printf("Enter a size of array : ");  scanf("%d",&num);  int Arr1[num],Arr2[num];  printf("Enter the values of array1 : ");  for(int i=0;i<num;i++)  {  scanf("%d",&Arr1[i]);  }  printf("Enter the values array2 : ");  for(int i=0;i<num;i++)  {  scanf("%d",&Arr2[i]);  }    for(int i=0;i<num;i++)  {  temp=Arr1[i];  Arr1[i]=Arr2[i];  Arr2[i]=temp;  }    printf("array1 : ");  for(int i=0;i<num;i++)  {  printf("%d,",Arr1[i]);  }  printf("\narray2 : ");  for(int i=0;i<num;i++)  {  printf("%d,",Arr2[i]);  }  return 0;  } |
| 1. Write a program to find the number of even numbers in an array 2. The program should accept an array and display the number of even numbers contained in that array   E.g.: **Output**: Enter the size of an array  **Input**: 5  **Output:** Enter the values of array  **Input:** 11, 20, 34, 50, 33  **Output:** Number of even numbers in the given array is 3 |
| *#include <stdio.h>*  *#include <stdlib.h>*  *int main(){*  *int ArrayLimit,flag=0;*  *printf("Enter the size :");*  *scanf("%d",&ArrayLimit);*  *int Array1[ArrayLimit];*  *printf("Enter the values : ");*  *for(int i=0;i<ArrayLimit;i++)*  *{*  *scanf("%d",&Array1[i]);*  *if(Array1[i]%2==0)*  *{*  *flag+=1;*  *}*  *}*  *printf("Number of even number is %d",flag);*  *}* |
| 1. Write a program to sort an array in descending order 2. Program should accept and array, sort the array values in descending order and display it   Eg: **Output**: Enter the size of an array  **Input**: 5  **Output**: Enter the values of array  **Input**: 20, 10, 50, 30, 40  **Output**: Sorted array:  50, 40, 30, 20, 10 |
| *#include <stdio.h>*  *#include <stdlib.h>*  *int main()*  *{*  *int ArrayLimit,temp;*  *printf("Enter An Array limit : ");*  *scanf("%d",&ArrayLimit);*  *printf("Enter values of array :a");*  *int SortArr[ArrayLimit];*  *for(int i=0;i<ArrayLimit;i++){*  *scanf("%d",&SortArr[i]);*  *}*  *for(int i=0;i<ArrayLimit-1;i++)*  *{*  *for(int j=0;j<ArrayLimit-1;j++){*  *if(SortArr[j]<SortArr[j+1])*  *{*  *temp=SortArr[j+1];*  *SortArr[j+1]=SortArr[j];*  *SortArr[j]=temp;*  *}*  *}*  *}*  *printf("Sorted array is :\n");*  *for(int i=0;i<ArrayLimit;i++){*  *printf("%d ,",SortArr[i]);*  *}*    *return 0;*  *}* |
| 1. Write a program to identify whether a string is a palindrome or not 2. A string is a palindrome if it reads the same backward or forward eg: MALAYALAM   Program should accept a string and display whether the string is a palindrome or not  Eg: **Output**: Enter a string  **Input**: MALAYALAM  **Output**: Entered string is a palindrome  Eg 2: **Output**: Enter a string  **Input**: HELLO  **Output**: Entered string is not a palindrome |
| *#include <stdio.h>*  *#include <string.h>*  *int main() {*  *char str[100];*  *int i,j,flag=0,length;*  *printf("Enter a string: ");*  *scanf("%s", str);*  *length=strlen(str);*  *for (i = 0, j = length - 1; i < j; i++, j--) {*  *if (str[i] != str[j]) {*  *flag=1 ;*  *}*  *}*  *if (flag==0) {*  *printf("The string is a palindrome.\n");*  *} else {*  *printf("The string is not a palindrome.\n");*  *}*  *return 0;*  *}* |
| 1. Write a program to add to two dimensional arrays 2. Program should accept two 2D arrays and display its sum   Eg: **Output**: Enter the size of arrays  **Input**: 3  **Output**: Enter the values of array 1  **Input**:  1 2 3  4 5 6  7 8 9  **Output**: Enter the values of array 2  **Input**:  10 20 30  40 50 60  70 80 90  **Output**: Sum of 2 arrays is:  11 22 33  44 55 66  77 88 99 |
| #include <stdio.h>  #include <stdlib.h>  int main(){  int ArrayLimit;  printf("Enter the size arrays : ");  scanf("%d",&ArrayLimit);  printf("Enter the values of first array : ");  int MultiArray1[ArrayLimit][ArrayLimit];  for(int i=0;i<ArrayLimit;i++){  for(int j=0;j<ArrayLimit;j++){  scanf("%d",&MultiArray1[i][j]);  }  }  printf("Enter the values of second array : ");  int MultiArray2[ArrayLimit][ArrayLimit];  for(int i=0;i<ArrayLimit;i++){  for(int j=0;j<ArrayLimit;j++){  scanf("%d",&MultiArray2[i][j]);  }  }  for(int i=0;i<ArrayLimit;i++)  {  for(int j=0;j<ArrayLimit;j++){  MultiArray1[i][j]+=MultiArray2[i][j];  }  }  printf("Sum of two array is : \n");  for(int i=0;i<ArrayLimit;i++){  for(int j=0;j<ArrayLimit;j++){  printf("%d ",MultiArray1[i][j]);  }  printf("\n");  }        return 0;  } |
| 1. Write a program to accept an array and display it on the console using functions 2. Program should contain 3 functions including main() function   **main()**   1. Declare an array 2. Call function getArray() 3. Call function displayArray()   **getArray()**   1. Get values to the array   **displayArray()**   1. Display the array values |
| *Code of the program & screenshot of the output.* |
| 1. Write a java program to check whether a given number is prime or not 2. Program should accept an input from the user and display whether the number is prime or not   Eg: **Output**: Enter a number  **Input**: 7  **Output**: Entered number is a Prime number |
| *Code of the program & screenshot of the output.* |
| 1. Write a menu driven java program to do the basic mathematical operations such as addition, subtraction, multiplication and division (**hint**: use if else ladder or switch) 2. Program should have 4 functions named addition(), subtraction(), multiplication() and division() 3. Should create a class object and call the appropriate function as user prefers in the main function |
| *Code of the program & screenshot of the output.* |
| 1. Grades are computed using a weighted average. Suppose that the written test counts 70%, lab exams 20% and assignments 10%.   If Arun has a score of  Written test = 81  Lab exams = 68  Assignments = 92  Arun’s overall grade = (81x70)/100 + (68x20)/100 + (92x10)/100 = 79.5  Write a program to find the grade of a student during his academic year.   * 1. Program should accept the scores for written test, lab exams and assignments   2. Output the grade of a student (using weighted average)   Eg:  Enter the marks scored by the students  Written test = 55  Lab exams = 73  Assignments = 87  Grade of the student is 61.8 |
| *Code of the program & screenshot of the output.* |
| 1. Income tax is calculated as per the following table  | **Annual Income** | **Tax percentage** | | --- | --- | | Up to 2.5 Lakhs | No Tax | | Above 2.5 Lakhs to 5 Lakhs | 5% | | Above 5 Lakhs to 10 Lakhs | 20% | | Above 10 Lakhs to 50 Lakhs | 30% |   Write a program to find out the income tax amount of a person.   1. Program should accept annual income of a person   Output the amount of tax he has to pay  Eg 1:  Enter the annual income  495000  Income tax amount = 24750.00  Eg 2:  Enter the annual income  500000  Income tax amount = 25000.00 |
| *Code of the program & screenshot of the output.* |
| 1. Write a program to print the following pattern using for loop   1  2 3  4 5 6  7 8 9 10 |
| *Code of the program & screenshot of the output.* |
| 1. Write a program to multiply the adjacent values of an array and store it in an another array    1. Program should accept an array    2. Multiply the adjacent values    3. Store the result into another array   Eg:  Enter the array limit  5  Enter the values of array  1 2 3 4 5  Output  2 6 12 20 |
| *Code of the program & screenshot of the output.* |
| 1. Write a program to add the values of two 2D arrays 2. Program should contains 3 functions including the main function   **main()**   1. Call function getArray() 2. Call function addArray() 3. Call function displayArray()   **getArray()**   1. Get values to the array   **getArray()**   1. Add array 1 and array 2   **displayArray()**   1. Display the array values   Eg:  Enter the size of array  2  Enter the values of array 1  1 2  3 4  Enter the values of array 2  5 6  7 8  Output:  Sum of array 1 and array 2:  6 8  10 12 |
| *Code of the program & screenshot of the output* |
| 1. Write an object oriented program in java to store and display the values of a 2D array    1. Program should contains 3 functions including the main function   **main()**   1. Declare an array 2. Call function getArray() 3. Call function displayArray()   **getArray()**   1. Get values to the array   **displayArray()**   1. Display the array values   Eg:  Enter the size of array  3  Enter the array values  1 2 3  4 5 6  7 8 9  Array elements are:  1 2 3  4 5 6  7 8 9 |
| *Code of the program & screenshot of the output* |
| 1. Write a menu driven program in java to calculate the area of a given object.    1. Program should contain two classes       1. Class 1: MyClass       2. Class 2: Area    2. Class MyClass should inherit class Area and should contain the following functions       1. main()       2. circle()       3. square()       4. rectangle()       5. triangle()    3. Class Area should contain the following functions to calculate the area of different objects       1. circle()       2. square()       3. rectangle()       4. triangle()   Class MyClass extends Area{  public static void main(string args[]){  }  circle() {  }  square() {  }  rectangle() {  }  triangle() {  }  }  Class Area{  circle(){  }  square(){  }  rectangle() {  }  triangle() {  }  }  Eg 1:  Enter your choice   1. Circle 2. Square 3. Rectangle 4. Triangle   2  Enter the length  2  Output  Area of the square is: 4  Eg 2:  Enter your choice   1. Circle 2. Square 3. Rectangle 4. Triangle   1  Enter the radius  3  Output  Area of the circle is: 28.26 |
| *Code of the program & screenshot of the output* |
| *25.* Write a program to skip two elements after the occurrence of an odd number and print the array elements in the following pattern  \* \*  \*  \*  \*  \* \* \* \*  \*  \*  \*  \*  \*  \*  \* \* \* \* \* \* |
| *Code of the program & screenshot of the output* |