|  |  |
| --- | --- |
| ***LECTURE -4*** | |
| **<>**==>Angle brackets  **()**==>Parenthesis  {}== > Curly Braces, body, block of code  **[]**== > scare brackets  void main(){  int number =123;  int roolnumber=1;  String name="ALI";  String fname="akram";  double smaic= 3434.2;  bool ischeck = true;  print(name);  print(fname);  print(smaic);  print(ischeck);  print (name.toLowerCase());  }  **void main(){**  **singal line comments**  //this app stuctre  **double line comments**  /\* this  is  my  app  \* /  **doucment comments for file explanation**  //this app structure  **}**  **Variables**  **Data types**  1234 **int** number = 123; > integer  Akram **string** name=“Akram” ; >string  4.555 **double** gpi =34.2344; >double  True false **bool** is check =true; > Boolean |  |
| Late int b;  And  Late int b;  Agr hum b ko use ni krty to memory use hoti  late lagany sy memory use ni ho gi | ***Late use for global – un nulable or initialized***  **(ager b red under line ha to *late* lgaain gy)**  **Int b=12; likh sakty hn**  **Global- *void main(){ }*body ky uper ya nechy likha hova)**  **Local veriable- *void main(){ }*ky uner likha hova)**  **Late int b; ye late ky bager ni likh sakty**  **Initialized- void main(){ }ky uper likha hova)** |
| **LECTURE =5** | |
| Int  String  Double  Bool  Dynamic | Statistic  Variable names |
| Var | Integrated |
| void main() {  int number = 123;  int roolnumber = 1;  String name = "ALI";  String fname = "akram";  double smaic = 3434.2;  bool ischeck = true;  print(number);  print(name);  print(fname);  print(smaic);  print(ischeck);  print(name.toLowerCase());  } | 123  ALI  akram  3434.2  true  ali |
| **void main (){**    **int id, rolno, cnic;**  **String name, fname, address;**  **double per, domi;**  **bool yes, nos;**  **id= 1;**  **rolno=23;**  **cnic=35501;**  **name='kh';**  **fname='th';**  **address='chak 91';**  **per=32.2;**  **domi=23.22;**  **yes=true;**  **print(id);** | **Multi line verable** |
| **void main(){**  **int id=1, rollno=12,cnic=23323;**  **String name='khadim',fname='talib';**  **double domi=23.2, ab=12.333;**  **bool yes=true, no=false;**  **print(domi);**    **}** | **Single line verable** |
| **String =abc or abc1 or \_abc or $abc** | **Every verable start with alpha, \_ or $** |
|  | **Verable no use space or special character**  **Cant not use keyword (void like or String)** |
| **Statistic verable** | **Int**  **String**  **Doble bool** |
| **(Inferred verable)**  **var id=1,name='khadim', yes=true, domi=23.22;** | **Use for writing multiple variable in one line** |
| **print(name.toUpperCase()+' '+fname.toLowerCase());** | **Lower and uppercase** |
| **Verable** | **userId, userFname (uperCamleCase** |
| **Directory name** | **(Small and use snack case)**  **file\_name, folder\_name, directory\_name, project\_name** |
| **LECTURE – 06** | |
| **Null** | **Blank, empty**  **Jis me koi data na dena ho** |
| **Nullable variable**  **Null likhny ky ly ? lgana pry ga** | **All staticlally type verable are nulable**  **Int, String, double, bool (is me Null ni likh sakty** |
| **Non nullble banany ky ly data type ky bd ? lgaty hn** | **Int? Id=Null;**  **String? Name=’khadim’;** |
| **Non-nulable veriable** | **Var phonNo=Null; (is me null likh sakty hn** |
| **Var** | **Use for all verable** |
| **Dynamic** | **Use only int, string, bool, and double** |
| **void main (){**  **var d;**  **d=333;**  **d="khadim";**  **d=3.333;**  **d=true;**  **print(d);**    **}** | **Is me jo last pr ho ga wo answer ay ga**  **TRUE** |
| void main(){ int? a; print(a ?? 34); } | **Null ko print krny ky ly *??* lga kr value dy skty hn** |
| ?? | **Use for replacement** |
| void main(){  String? a, b='ali';  print(a ?? b); } | **Replacement hum veriable b print krwa skty hn** |
| void main(){  var a, b=10;  a= a ?? b;  print(a); } | **Result 10**  **A ko B ki value replace ho jay gay**  **Right wali cheez replace hoti ha left waly ko** |
| void main(){  var a;  a??= 12;  print(a); } | **??=** |
| void main(){  var a, b=12, c=23;  print(a ??= b+c);  print(a); } | **Result**  **35**  **35** |
| void main(){  var a, b=12, c=23;  print(a ?? b+c);  print(a); } | **35**  **Null** |
| void main(){  var a, b=12, c=23;  a ??=b+c;  print(a); } | **35** |
| a ?? b+c; | **Assign result Null** |
| a ??=b+c; | **Replacement result b+C** |
| Const url=’all-available.com’;  Is me usi waqat value dani pary gi | **In ki value kbi bi change ni ho gi**  **Const me usi waqt value daty hn** |
| Final id=334; is me bad me value dy sakty hn… lekin sir 1 bar  and  void main(){  var a, b=12, c=23;  final g =c;  print(g); } | **Final me koi or value b assign kr saty hn sirf ak bar** |
| void main(){ String a='Pakistan', b=' zindabad',c=' on '; int d= 14; String e=' August'; print(a+b+c+d.toString()+e); }  void main(){  int a=444;  String b="pakistan";  final c=44;  double d=3.2;  print(a.toString()+b+c.toString()+d.toString());  } | **Pakistan zindabad on 14 August** |
| void main(){ int d= 14; print("Pakistan Zindabad on $d August"); } | **String Literal**  **Pakistan zindabad on 14 August** |
| void main(){ int d= 14; String a="Pakistan Zindabad on $d"; print(a); }  void main(){  int a=444;  String b="pakistan";  final c=44;  double d=3.2;  print("ints $a, Strints $b, finals $c and doubls $d");  } | **Pakistan zindabad on 14 August**  **Hum asy b multiple value print kr sakty wo string ya koi or** |
| void main(){ int d= 14, b=34; double c=343.333; String a="khadim"; print(" My Name is $a my total marks is ${d+b\*c}"); } | **String interpolation**  **My Name is khadim my total marks is 11687.322** |
| void main(){ int a=10, b=20, c=30; print("My math number is ${a+b} and islamyat number is ${b-a} english number is ${c\*a} and toal is ${c/a}"); }  void main(){  int a=444;  String b="pakistan";  final c=44;  double d=3.2;  print("ints ${a+c+d}, Strints ${a+c-d}, finals ${a\*c/d} and doubls $d");  } | **My math number is 30 and islamyat number is 10 english number is 300 and toal is 3.0** |
| Dart collection 3 type  List  Set  Map | **Is me multiple vale likh skaty hn** |
| void main(){  List list =['a','b','c',1,2,3,34.2];  print(list); }  and  void main(){  var list =['a','b','c',1,2,3,34.2];  print(list); }  and  void main(){  List <int> list =[1,2,3];  print(list); } | **Is me doublicate value a sakti hn** |
| void main (){ Set set={'pakistan', 'born', 'on' ,14,'august'}; print(set); }  and  void main (){  var set={'pakistan', 'born', 'on' ,14,'august'};  print(set); }  and  void main (){  Set <String> set={'pakistan', 'born', 'on' ,'august'};  print(set); } | **Is me duplicate value ni a sakti** |
| void main (){ Map map={"user\_name":"Khadim", "user\_contact\_no":03014504591}; print(map); }  and  void main (){ var map={"user\_name":"Khadim", "user\_contact\_no":03014504591}; print(map); }  and  void main (){  Map <String, String> map={"user\_name":"Khadim", "user\_contact\_no":'yes'};  print(map); } | **Is me duplicate value ni a sakti**  Keye must b in snack\_case and small digit |
| void main (){  Map <String, dynamic> map={"user\_name":"Khadim", "user\_contact\_no":'0302330930'};  print(map); } | **Dynamic me sb velue a jati**  **Best type**  **Map <String> map=** |
| **LECTRE NO. 10** |  |
| void main(){  *// List me* ***dublicate*** *value a sakti ha* List name=["ali","akram"]; *// list creat in one line* List? fName=[]; *// null value* List sonName=["jabbar","murtaza"]; List finalNames=[...name,...fName,...sonName]; *// tamam list ki ak final list creat krny ky ly ... // var name=["ali","akram"]; //var ky through b list creat ho sakti  //List <String>name=["ali","akram"]; // String ya int sy spicify data likh sakaty  //List name=[]; //list me data bd me add kr sakty  //name.add("ali");  //name[0]="aslam"; // value update kr sakty // name.removeAt(0); // value deltet kr sakty  //name.clear(); // sb kcuh delte kr skty // for in ky throuth spicific vale print kr sakty*  *//for ( String student in name){ print(student); }*  *For +int or string+name+in+value{print+name}*  *values ko asy print krwany ky ly*  *1*  *2*  *3   //print(name.elementAt(1)); // koi b value 0,1 likh kr print kr sakty* print(name.length); *// total lenth dekh skaty* print(finalNames); }  void main(){  Set<int> values= {10,20,30,40,50};  int sum=0;  for(int number in values){  sum= sum+number;}  print("$values");  print("$sum");    }  void main(){  List fruitNames=["Apple","Mango","Orange","Banana","Grapes","Strawberry","Pineapple"];  List fruitList=[];  for(var fruits in fruitNames){  fruitList.add(fruits);  }  print(fruitList);} | **LIST** |

|  |  |
| --- | --- |
| void main(){  *// Set me dublicate value nahi a sakti ha* Set name={"ali","akram"}; *// Set creat in one line* Set? fName={}; *// set -1 - null value* Set sonName={"jabbar","murtaza"}; *//set-2* Set finalNames={...name,...fName,...sonName}; *//set-3 // tamam list ki ak final list creat krny ky ly ...  //var name=["ali","akram"]; //var ky through b list creat ho sakti  //Set <String>name={"ali","akram"}; // String ya int sy spicify data likh sakaty  //Set name={}; //list me data bd me add kr sakty  //name.add("ali"); // name[0]="aslam"; // value update ni ho sakty // name.remove(0); // value deltet kr sakty  //name.clear(); // sb kcuh delte kr skty  //for ( String student in name){ // for in ky throuth spicific vale print kr sakty  //print(student); } // print(name.elementAt(0)); // koi b value 0,1 likh kr print kr sakty //print(name.length); // total lenth dekh skaty* print(finalNames); }  void main(){  Set<int> values= {10,20,30,40,50};  int sum=0;  for(int number in values){  sum= sum+number;}  print("$values");  print("$sum");    }  void main(){  Set fruitNames={"Apple","Mango","Orange","Banana","Grapes","Strawberry","Pineapple"};  Set fruitList={};  for(var fruits in fruitNames){  fruitList.add(fruits);  }  print(fruitList);  } | **Set** |
| void main(){  *// Map me dublicate value nahi a sakti ha - Keye must b in snack\_case and small digit* Map? nameali":"akram"}; *//map-2* Map SonName={"zubair":"rana"}; *//map-3* Map finalName={}; *//map-1 - null value // list creat in one line* Map fName={"s={...name,...fName,...SonName}; *//map-4 // is me sb map ki value a gai  //var name={"ali":"akram"}; //var ky through b list creat ho sakti // Map <String, dynamic>name={"ali":"akram"}; // String ya int sy spicify data likh sakaty // Map name={}; //list me data bd me add kr sakty  //name.addAll({"ali":"akram"});  //name["ali"]="aslam"; // value update kr sakty  //name.remove("ali"); // value deltet kr sakty  //name.clear(); // sb kcuh delte kr skty //for ( String student in name.values){ // for in ky throuth spicific vale print kr sakty // print(student); } //print(name.length); // total lenth dekh skaty* print(finalNames); }  void main(){  Map<int, int> values= {10:20,30:40};  int sum=0;  for(int number in values.values){  sum= sum+number;}  print("$values");  print("$sum");  void main(){      Map <String, String> fruitNames={"fruit":"Apple"};  Map fruitList={};  for(String fruits in fruitNames.values){  fruitList.addAll(fruits);  }  print(fruitList);  }    } | **Map** |
| void main(){  List teacher\_name=[];  teacher\_name.add("Aslam");  teacher\_name.add("Akram");   print("my total teacher is ${teacher\_name.length}");  } | **my total teacher is 5** |
| void main (){  Set color={};  color.add("green");  color.add("white");  color.add("black");  print("my feverot color are ${color.length}"); } | **my feverot color are 3** |
| void main (){  Map color\_code={};  color\_code.addAll({"green":54545,"white":45454,"black":45454});  print("my feverot color code are ${color\_code.length}"); } | **my feverot color code are 3**  *NAME CALLS*  **GREEN> KEYS**  **54545> VALUES**  **GREEN:54545> ENTRIES** |
| void main (){  List color=[];  color.add("green");   color.add("white");  color.add("black"); for (var item in color){  print(color);}  } | **for in**  **{green, white, black}**  **{green, white, black}**  **{green, white, black}** |
| void main (){  Set color={};  color.add("green");  color.add("white");  color.add("black"); for (var item in color){  print(color);}   } | **{green, white, black}**  **{green, white, black}**  **{green, white, black}** |
| void main (){  Map color\_code={};  color\_code.addAll({"green":54545,"white":45454,"black":45454});  for (var color in color\_code.entries) {  print(color.value);  print(color.key);}   } |  |
| void main (){  List color=[];  color.add("green");  color.add("white");  color.add("black");  color [0] = "yellow";  color[1] = "red";  print(color); } | **For update values**  **[yellow, red, black]** |
| void main (){  Map color\_code={};  color\_code.addAll({"green":54545,"white":45454,"black":45454}); color\_code["green"]=88889; color\_code["white"]=888; color\_code["black"]=898798; print(color\_code); } | **For update values**  **{green: 88889, white: 888, black: 898798}** |
| void main (){  List color=[];  color.add("green");  color.add("white");  color.add("black"); **color.removeAt(0);**  print(color); } | **For remove any value**  **[white, black]** |
| void main (){  List color=[];  color.add("green");  color.add("white");  color.add("black"); **color.clear();**  print(color); } | **For remove all values** |
| void main (){  List color=[];  color.add("green");  color.add("white");  color.add("black");  **print(color.elementAt(1));** } | **Koi ak value print krny ky ly** |
| void main (){  Set color={};  color.add("green");  color.add("white");  color.add("black");  **color.remove("green");**  print(color); } | **Set me sy koi value delete krni ho to**  **{white, black}** |
| map.remove(99889); | **Map me sy value remove krna** |
| void main() {  List item1 = [1, 2, 3, 4];  List item2 = [5, 6, 7, 8];  List item3 = [9, 10, 11, 12];  List item4 = [ ...item1, ...item2, ...item3,13,14];  print(item4); } | **4 list ko 1 list me dalna**  **[1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14]** |
| void main() {  List? item1 = Null;  List item2 = [5, 6, 7, 8];  List item3 = [9, 10, 11, 12];  List item4 = [ ...?item1, ...item2, ...item3,13,14];  print(item4); } | **Nul ko b add krny ky ly** |
| **FUNCTION (part of name body, parameters, retrun type, parenthise control+p see all values**  **Phly function banana phr call krna**  **Function kesi b function add ho sakta ha**  DEFINITION=> A function is a set of statements to perform a specific task. Functions organize the program into logical blocks of code.  Once defined, functions may be called to access code. This makes the code reusable. In simple words we can say that functions are used for  code-re-usability and code-organization.  => Every function contains a specific name, parenthesis, and a body  => we can also use parameters in functions but these are optional  => we can also return value to a function but it is also optional  => a function is defined in start and then called after block of code for execution  **CODE REUSBILITY** | |
| **Return**  // use of "return" keyword in functions  // return keyword is used in the body of any function to return its value to the function  // we can only return one value in a function  // once we use return statement, the lines of code will not be executed anymore  // we can only return value once in a function  // it is a good practice to mention/define data type of a function  // if data type of a function is defined then its return type will be in same data type  // we cannot use one data type in a function call and other in code body  // if we use **void** keyword before using function then its value cannot be returned | |
| Return me hum function sy phly int, String etc lga skty hn jis ka matlb ye int or string typy ka data return kry ga | |

|  |  |
| --- | --- |
| **void main() {**  **print(myInfo());}**      **myInfo(){**  **List myInfo=["Huma Nazir", "Nazir Ahmed", 23, 3.9, "Pass"];**  **return myInfo;**  **}** | |
| void main(){  print(addNumbers());  }  addNumbers(){  int number1= 10;  int number2= 20;  int totall= number1 + number2;  return totall;  } | **30** |
| **// FUNCTION PARAMETERS**  //Parameters are the values of the function written inside the parenthesis that are used in function  //Parameters can be of any data type  // value of a parameters will be assigned in a same data type as it is defined in function definition  // Parameters can only be accessed inside the body , we cannot access them outside the body  /\* Defining a parameter is not compulsory, it is optional, but if we have defined a parameter in function then we will have to asign  the value of that parameter while calling a function\*/  //we can consider parameters as variables  //there are two types of parameters 1=> Required Parameters 2=>Optional parameters  (I have called function before it's definition in these notes to maintain the sequence but in real coding function will be defined before it is being called)  Parameter koi b value lay sakta ha like int, string etc or smiple a b ly skta | **Required (int a,int b) parmeter ki bja khud required parmeter banan chay**  **({required int a, require int b})**  **Is me value zayada clear han**  **Ku k is me pata ha a ki value kia ha b ki value kia ha**  **Khud required bana behtar ha** |
| void main(){  addNumbers(10,20);  }  void addNumbers(int number1,int number2){  number1= 10;  number2= 20;  print( number1 + number2);  } | **Required parameter**  **Required bht km hoty han optional parmeter zayda hoty hn ku ky in qalarty zayda hoti ha**  **C:334;** |
| void main(){  addNumbers(10,20);  }  void addNumbers(int a,int b,{int c, String d, bool e}){  a= 10;  b= 20;  print( a + b);  } | **Optional name parameter**  **Start with {} in ki tarteeb zarori ni**  **{} ki value do ya na do**  **Optional name parmeter must be initialized or nullable**  **Nullable krna bht resky km ha initliazed krna asan ha jeder zarot ha uder nullable banay** |
| void main(){  addNumbers(10,20);  }  void addNumbers(int a,int b,{int? c, String? d, bool? e}){  a= 10;  b= 20;  print( a + b);  } | Nullable **bnany ky ly** |
| void addNumbers(int a,int b,{int c=0, String d=0, bool e=0}){ | initliazed **kry ky ly** |
| void addNumbers(int a,int b,{ required int c, required String d, required bool e}){ | **Parameter ko** required **banay ky ly** |
| void main(){      studentData("khadim Hussain", 233, cnicNo:36502, email:"abc@gmail.com", dob:"34/2/1987", gpa:3.21);    }  void studentData(String name,int rollNo,{int cnicNo=0, String email="", var dob="", double gpa=0.0,}){  print(name );  } | **Khadim hussain** |
| import 'dart:html';  import 'package:flutter/material.dart'; void main() {  runApp(  MaterialApp(  home: Scaffold(  appBar: AppBar(  title: Text("Functions"),  ),  body: Material(  child: Center(  child: ElevatedButton(  child: Text("Click Me!"),  onPressed: () {  studenInfo("Khadim Hussain", 22,dob:"10-11-1987",emailAddress: "abc@gmail.com");  },  ),  ),  ),  ),  ),  ); }  void studenInfo (String name, int rollNo, {var dob="", String emailAddress=""}){  print(rollNo);  print(dob);  print(emailAddress); } |  |
| Myfunction(){  //dart code  Print(“hellow”);} |  |
| myName(){  String name="khadim Hussain";  String fName="Talib Hussain";  print("my name is $name");  print("my Father name is $fName");    }  void main(){  myName();    } | my name is khadim Hussain  my Father name is Talib Hussain |
| void main(){  print(myColorCode());    }  myColorCode(){  Map color={"Yellow":444, "green":4434};  return (color);  } | Return function |
|  |  |
| myMarks(){  List <String> subjects=["English", "math"];  List <int> numbers=[12,33];  List<double> gpa=[2.21, 3.42];  List total=[...subjects,...numbers,...gpa];  return(total);}  void main(){  dynamic total=myMarks();  print (total);    } | [English, math, 12, 33, 2.21, 3.42] |
| totalNumber(){  int a=2, b=2;  int c=a+b-12+3;  return(c);}  void main(){  double ac=totalNumber()+34+totalNumber()/4-totalNumber();  print(ac);  } | double |
| Flutter Base Code:  import 'package:flutter/material.dart'; void main() {  runApp(  MaterialApp(  home: Scaffold(  appBar: AppBar(  title: Text("Functions"),  ),  body: Material(  child: Center(  child: ElevatedButton(  child: Text("Click Me!"),  onPressed: () {  dynamic total=myMarks();  print (total);  },  ),  ),  ),  ),  ),  ); }  myMarks(){  List <String> subjects=["English", "math"];  List <int> numbers=[12,33];  List<double> gpa=[2.21, 3.42];  List total=[...subjects,...numbers,...gpa];  return(total);} |  |
| familyName("Khadim Hussain","Talib Hussaian",broName:"umar", sisName:"Mumtaz");  void familyName(name, fName,{broName="",sisName=""}){   print("my family member name are ${name+" "+fName+" "+broName+" "+sisName}"); } |  |
|  |  |
| marks(mark: [3,2,3,2,1], totalNumber: 1);  void marks({required List mark,required int totalNumber}){ if(mark.contains(totalNumber)){  print("$totalNumber exist"); } else{  print("$totalNumber not exist");  } |  |
| marks(mark: [3,2,3,2,1], totalNumber: 1);  void marks({required List mark,required int totalNumber}){ mark.contains(totalNumber)? print("$totalNumber exist"): print("$totalNumber notexist");  } |  |
| void marks({required List mark,required int totalNumber})=> mark.contains(totalNumber)? print("$totalNumber exist"): print("$totalNumber notexist"); | =>, arrow function  Use for only one statement |
| Int mark(int number)=>30; | Use for return  Phr retrn likhny ki zarort ni |
| Is me position matter krti h  Phly a b c d  Ab ky bd d c ki value ni dy sakaty  Is me required use ni ho skta | Opionalpositional parmater ko [] me lkihty hn |
| **void main(){**  **marks(number:{"English":33, "Urdu":22,});**  **}**  **void marks({required Map <dynamic, int> number}){**  **print(number);**  **}** | {English: 33, Urdu: 22} |
| **Abc (){**  **Print(“basic function)”**  **}**  **Basic function kesi b type ka data return krwa skata ha** | Basic function |
| **Void abc (){**  **Print(“regular function)”**  **}** | Regular function |
| **Int abc(){**  **Return 23;**  **}**  **Printn ky ly asy cl krty**  **void main(){**  **print("${abc()}");**    **}**  **int abc(){**    **return 445;}** | Retrn function |
| **Function (is me function ka name lazmi dety hn) abc();**  **banay ka maqsad koi code bana kr rkh lty hn jo bar bar istmal ho sky** | Code reusability |

|  |  |
| --- | --- |
| **Anonymous function (){ ye bd me use hota}**  **Is me Function data type use hota**   * **nameless function-** * **asa function jo kesi dosry function ko as a parmeter ly higher order function hota ha** * Higher order function ko call krty waqat **Anonymous function istml krna ha** * Abc(Function, int) * Abc(is me jo function baya likhty hn, 34) * **ye sirf ak br use hota** * **is ka fada ya ha is me name space bach jati** * **name dayny ki zarort ni hoti** * **Asy function jin ko bs ak br hi cl krny ki zarort ho** * **banay ka maqsad koi code bar bar istmal na krna ho to** * **is ko as a parmeter kesi dosry function me pass krain gy** * **Namless function** * **Lambda function var abc= (){print(“hlo”);};** * **One time calling** * **Immeditaly calling (callback function** | **void main(){**  **elevatedButtion( onPress:(){},child:"click it");{**  **print("onpress");**  **}}**  elevatedButtion({required Function onPress, required String child}){    } |
| **Function abc= 44;**   * **(function b data type jesy int)** * **Function type me function data type hoti jesy int me 33** * **Print(abc);** * **var abc= 44;** * **Print(abc);** | Agr koi function type lekhni ho to function or var type istmaly krty hn |
| **Abc(function a, String b){**  **} asa function jo kesi dosry function ko as a parmeter ly higher order function hota ha**  **Phly function bna lain** | Higher order fuction |
| **Mark(abc,44);**  **Void mark(function a, int b){}**  **Abc int(333);** | Higher order function ko call krty waqat **Anonymous function istml krna ha** |
| **void main(){**  **abc(a:(){}, b:444);**  **}**  **abc({Function? a, int b=0}){**  **print("$b");**    **}** |  |
| **void main(){**  **abc(onPress:(){},child:"Khadim");**  **}**  **abc({required Function onPress, required String child}){**  **print("$child");**  **}** |  |
| **void main(){**  **abc((){},"Khadim");**  **}**  **abc(Function onPress, String child){**  **print("$child");**  **}** |  |

|  |  |
| --- | --- |
| **void main (){**  **elevatedButtion(**  **onPress:(){**  **print("abc");**    **},**  **child:"click me",**  **);**    **}**  **elevatedButtion({required Function onPress, required String child}) {**    **}** |  |
| **Device event**  All nofication ana, mobile stare hona, close hona, alarm baja |  |
| **App event**  Buttonpress, long press, tap, app open, app close, alret box |  |
| **Call back function** (also name after function) –  Ye button pr press krny pr call hota  event pr call ho ga  A function that call upon an event trigger  We don’t manualy call  We always pass a function parmater  We always pass anonymous function  **Ye Anonymous function ky ult likhty**  **Is me value nechy dety or parameter void main me**  onPressed: () { outerFunction(({required int a, required String b,}){print("a value is$a and b value is $b");});}  void outerFunction (Function callBack){  callBack(a:2, b:”ali”); } |  |
| outerFunction((){print("hellow");}); void outerFunction (Function callBack){ callBack();}  **void main(){**  **outerFunction((){print("hellow");});}**  **void outerFunction (Function a){**  **a();}** |  |
| pressButton (one press and result)  longPress (press long and result)  onHover (mouse ko button p rly kr jain gy to wo call ho jay ga press krny ki zarott ni ho gi) |  |
| onPressed: () { outerFunction(({required int a, required String b,}){print("a value is$a and b value is $b");});}  void outerFunction (Function callBack){  callBack(a:2, b:”ali”); } |  |
| onPressed: () {  outerFunction((a,b){print("a value is$a and b value is $b");  }); void outerFunction (Function callBack){  callBack(33,22); }  } |  |
| outerFunction ((a, b) {print("total marks of a is $a and b is $b "); });  void outerFunction( Function call){  call(22,2);} |  |
| outerFunction ((int a, String b) {print("total marks of a is $a and b is $b "); });  void outerFunction( Function call){  call(22,"ali");} |  |
| outerFunction (({required int a, required String b}) {print("total marks of a is $a and b is $b "); });  void outerFunction( Function call){  call(a:22, b:"ali"); } |  |
| outerFunction (({required int a, required int b}) {return a+b;});  void outerFunction( Function call){  print( call(a:22, b:44)); } |  |

|  |  |
| --- | --- |
| **Object oriented programming (OOP)**  OPP is not a programming language  OPP is the name of STRUCTURE, APPROCH, PATTREN, DESIGN PATTERN, WAY OF WORKING  Benefit of OPP code reusability and code organization |  |
| **OPP TOPIC**   * **Classes & objects** * **Constructors** * **Inheritance** * **polymorphism** * **Abstraction** * **Generic classes** * **Enumeration** * **mixin** |  |
| * **Classes & objects** * **(class bany ka maqsad hum us ky function ko utlize krain** * **student ki classs me sb kuch student ka data ak hi body me para ho ga-** * **class me multiple function likh skty** * **her class ky ly new file bannay thy like student file name click new >dart file then file name student** * **agr same thing ak file me br br ain to her kisi ki new file bna lty hn** * **Name of group like male female cast, nantality,** * **Class Student\_Name{} class me phla word capital ho ga** * **Students ni ho ga Student hoga (jama ni ho ga single ho ga)** * **Is me object small ho ga** * **Class ki property / object class ky function me use hoti hn** * **Object ki value update b kr sakty student.name =”usma”** * **static late int no; (agr me object me phly static lgay gy to is ki value jetni b function ya object hon gy acces ho skati ha** * **Student.no=20; classname+ static object name= value;** * **Ye pori class ki property hoti** |  |
| **void main(){**  **//object small me ho ga**  **//multiple object bna skty**  **//class name+object name+=+class name+();**  **Student student\_Name= Student();**  **Student student\_RoolNo= Student();**    **}**  **class Student{**    **}**  **//property, /attributes/specification (male hight, color, age)**  **//function / method ( wo hardworker ha, disiner ha koi khobi)**  **Late lagna ha**  **Class ki propity use krty hovy class name use na krain like**  **Class Student{**  **Late Int rollno;**  **Late String name;** |  |
| **void main(){**  **//object creation**  **Student info=Student();**    **//function calling**  **info.abc();**  **info.xyz();**  **info.klm();**      **}**  **//object / property typing**  **class Student{**  **late int id;**  **late String name;**  **late int rollNo;**  **late String section;**  **late String address;**  **late double gpa;**  **late bool result;**  **late var email;**  **late List names;**  **//function typing**  **void abc(){**  **print("paksitan");}**  **void xyz(){**  **print ("zindabad");}**  **void klm(){**  **print ("14 august");}**  **}** |  |
| **Var detail=Pakistan(); (var ky throuth b kr skty)**  **void main(){**  **Pakistan detail=Pakistan();**  **detail.pakistaniDetail();**  **detail.pakistaniDetail2();**  **detail.pakistaniDetail3();**    **}**  **class Pakistan{**  **late int id;**  **late String babyqom;**  **late String symble;**  **late String language;**  **late String fruit;**  **late String flower;**  **late String game;**  **void pakistaniDetail(){**  **print ("My country");**  **}**  **void pakistaniDetail2(){**  **print ("name");**  **}**  **void pakistaniDetail3(){**  **print("is Pakistan Zindbad");**  **}**  **}** |  |
|  |  |
|  |  |

|  |  |
| --- | --- |
| **void main (){**  **StudentDetail students1=StudentDetail(); //students1**  **students1.student1(4,"khadim");// students1 data**  **students1.id=55; //update values**  **StudentDetail students2=StudentDetail(); //students2**  **students2.student1(5,"ali"); //students2 data**    **StudentDetail students3=StudentDetail(); //students3**  **students3.student1(6,"akram"); //students3 data**  **// print(students1.id); //print one specfic value**  **// students1.detail(); //print all values**  **//students2.detail();**  **//students3.detail();**    **StudentDetail.no=56; //static value**  **print(StudentDetail.no); //static print**    **}**  **class StudentDetail{**  **static late int no; //static propirty**  **late int id;**  **late String name;**  **void student1(int idno, String studentName){**  **id=idno;**  **name=studentName;**  **}**  **void detail(){**  **print(id);**  **print(name);**    **}**  **} void detail(){**  **print(id);**  **print(name);**    **}**  **}** |  |
| **void main(){**  **//student-1 data**  **StudentDetails student1=StudentDetails(); // class+object+class**  **student1.studentValues(11,"khadim",3.27); //object+functin-1+values**  **student1.name="khadim Hussain"; // value update krna**  **//student-2 data**  **StudentDetails student2=StudentDetails(); // class+object+class**  **student2.studentValues(12,"ali",2.27); //object+functin-1+values //student-1**  **//student-3 data**  **StudentDetails student3=StudentDetails(); // class+object+class**  **student3.studentValues(13,"akram",1.27); //object+functin-1+values //student-1**  **//student-4 data**  **StudentDetails student4=StudentDetails(); // class+object+class**  **student4.studentValues(14,"saqlain",4.27); //object+functin-1+values**  **//print student data**  **print(student1.name); //one or spacif value print**  **student4.studntprintdata(); //pory student ka data print krna**  **//static value**  **StudentDetails.id=1; // static value dena (class+object+value)**  **print( StudentDetails.id); // static value print krna**    **}**  **//class**  **class StudentDetails{ //(1)class**  **static late int id; // is ki value sb ko assing ho gi- is ko functiton me value ni dani**  **late int no; //Object/propirty**  **late String name;**  **late double GPA;**  **//function-1**  **void studentValues(int studentNo, String studentName, double studentGPA ){ //function-1 + value name**  **no=studentNo; //object propirty assign in function**  **name=studentName;**  **GPA=studentGPA;**  **}**  **//functuin-2 print function**  **void studntprintdata(){ //Function-2 for printing data (agr pory student ki value print krni ho oper)**  **print(no);**  **print(name);**  **print(GPA);**  **}**    **}** |  |
| **Constructors**  Function ky under constructor use ni hoty  Class ky under constructor use hoty hn  Constructor ky bd function b bn sakta ha   * **Ak class ky different constructors ho skty han like normal student ka constructor (Student(){})** * **Freelancer student ka (Student.freelancer(){})** * **Developer student ka(Student.devloper(){})** * **1st constorct ky 3 object han to 2nd constructor ky 3 ya zayda ho sakty 2 ni ho skaty** * **Jo class ka name ho ga wohi constructors ka name ho ga** * **This is special function** * **Use for initialise class-properties** * **Syntax is same as function** * **Constructor name same name as class name** * **Call automatically when object creation (jb void main me likhy gy to ye call ho jay ga)** * **No return type (is me voide ni likhty)**   **Clas me 1 sy zayda constructor ho skty**   * **Default constructor // jb koi constructor ni dety to wo default hota** * **Parmeterized define constroct // ye sirf ak constructor ho skata ha -is me value dety** * **Named-constructor // ye multiple constructor ho sakty hn** |  |
| **void main(){**  **Student student1=Student(1,2,3); // edr value dety**  **}**  **class Student{**  **Student(a,b,c){ // calass wala name dty**  **}**  **}** | **Constructors** |
| **void main(){**  **//parmetrized constructor**  **Student normal= Student(1, 22, "Khadim Hussain", 3.27);**  **//named-constructor-1**  **Student freelancer= Student.freelancer(2, 33, "Saqlaim", 2.27, "khadimitswl");**  **//named-constructor-2**  **Student developer= Student.developer(2, 33, "Saqlaim", 2.27, "khadimitswl", "app devlopment");**  **}**  **//class**  **class Student{**  **late int id;**  **late int rollNo;**  **late String name;**  **late double gpa;**  **late String profilelink;**  **late String course;**  **//parmetrized constructor**  **Student(int studentId, int StudentrollNo, String studentName, double studentgpa){**  **print("normal student name $studentName");**  **}**  **//named construtor -1**  **Student.freelancer (int studentId, int StudentrollNo, String studentName, double studentgpa, String link){**  **print("freelancer student name $studentName");**  **}**  **//named construtor -2**  **Student.developer (int studentId, int StudentrollNo, String studentName, double studentgpa, String link, String course){**  **print("developer student name $studentName");}**  **}** |  |
|  |  |
| **void main(){**  **//parmetrized constructor**  **Student normal= Student(1,);**  **//named-constructor-1**  **Student freelancer= Student.freelancer(33);**  **//named-constructor-2**  **Student developer= Student.developer("Saqlaim");**  **}**  **//class**  **class Student{**  **late int id;**  **late int rollNo;**  **late String name;**  **late double gpa;**  **late String profilelink;**  **late String course;**  **//parmetrized constructor**  **Student(int id){**  **//iniitlized**  **this.id=id;**  **or short hand approach**  **Student(this.id, this.name, this.rollNo) (hum body ki bajay esy b 1 line me code likh sakty)**    **print("normal student name $id");**  **}**    **//named constructor -1**  **Student.freelancer (int rollNo){**  **this.rollNo=rollNo;**  **print("freelancer student name $rollNo");**  **}**  **//named construtor -2**  **Student.developer (String name){**  **this.name=name;**  **print("developer student name $name");}**  **}** | **Constant constructors**  **Me apni marzi sy jis ko jetni marzi value day sakty han**  **This.name use for same name** |
| **Constant constructors means immubalbe objects**   * **Constant jis ki value change na ho object ki value change na ho** * **Class propriety final honi chahy** * **Is ki koi body ni honi chahy** * **Use const keywork to creat constant consstructor** * **Is me sb her constructor me sary objects ain gy, agr hum 5 me sy 2 to ko instilize kry is me null ni ay ga agr** * **Used for creation constant objects** * **vlue na b dain to** * **Jb name same ay ga to this.name keyword lgain gy** |  |
| **void main(){**  **const Employee data=const Employee(1, "khadim", 33);**    **}**  **class Employee{**  **final int id;**  **final String name;**  **final int rollNo;**  **const Employee (this.id, this.name, this.rollNo);**  **}** |  |
| **void main (){**  **const Teacher data=const teacher(4, "khadim");**    **}**  **class Teacher{**  **final int id;**  **final String name;**  **const Teacher({this.id=33, this.name="khadim"});**  **}** | By using name parameter constructor  ({Name:khadim)} |
| **void main(){**  **Human detail =Human(1,2,3);**  **var detail2=Human(1,2,3,);**  **var detail3=new Human(1,2,3);**  **}**  **class Human{**  **Human(int a, int b, int c){**  **print("$a,$b, $c");**    **}**  **}** |  |

|  |  |
| --- | --- |
|  |  |

|  |  |
| --- | --- |
| **void main(){**  **const Student value=const Student(id:33,name:"khadim");{**  **print ("$Student");**  **}**  **}**  **class Student{**  **final int id;**  **final String name;**  **const Student({required this.id, required this.name});**  **}** | **By using required or using name parmeter** |
| **Class Elements**   * Class property * Functions * Constructor   **Inheritance (extends)**   * The main purpose of Inheritance is “code reusability” * Inheritance means” relationship between classes” * The basic relationship is “parent-child” child class parent class ky function, constructor or property ko use kr sakty hn * Parent class: main class: super class * Child class: derived class * We use “extends” keyword to create parent-child relationship * Parent class me genral/common PROPITY OR FUCNCTION rakhy gy * Child class me specific cheezy rkhy gy * Child class parent ki property or function ko use kr sakti ha lekin construction use ni kr sakty * Dart suppots only multi level inheritance means(Pakistan>Punjab>sahiwal>91/6r * Is me 91/6r ka constructor ka object banty hovy phly Pakistan ka constructor call ho ga phr Punjab ka phr sahiwal phr 91/6r * In parent-child relationship first call parent class constructor then child construct * Hr child class ka apna constructor hota jo koi or child ismtal ni kr skata * We use “super” keyword when we have a constructor having argument / paametr in parent class * Agr parent class ky construct me koi parameter hon gy to humy “super ” use krna ho ga * Paramet construct sirf 1 ho sakata name constructor jetny marzi bna lain   void main(){  Pakistan info =Pakistan(34);  }  class Pakistan{  Pakistan(int a);  }  class Punjab extends Pakistan{  Punjab(): super (34);  }  void main(){  //object banaya //constucor call keya  Women ayesha= Women();  Male ali=Male();    }  class Human{  Human(int id, double gpa,{required String name,required String city, required int age}){  print("$id, $gpa, $name, $city, $age");    }}  class Male extends Human{  Male() : super (1,3.23,name:"ali",city:"lahore",age:43);  }  class Women extends Human{  Women() : super (2, 2.45, name:"ayesha", city:"karachi",age:54);  }   1. PARENT CLASS 2. CHILD-1 CLASS   Child functions   1. CHILD-2 CLASS   Child functions  class Pakistan {    }  class Punjab extends Pakistan{    }  class Sind extends Pakistan{    }  class Kpk extends Pakistan{    }  class Balochistan extends Pakistan{    }  **Classes relationship** |  |
| *void main(){*  *//parent class call in parent* Pakistan pakinfo=Pakistan(); *//parent function call in parent* pakinfo.national\_language(); *//parent proprity call in parent* pakinfo.id=33;  *//child-1 class call* Punjab punjabinfo=Punjab(); *//parent propirty use in child-1* punjabinfo.id=44; *//parent function use in child-1* punjabinfo.national\_language(); *//child-1 function use in child-1* punjabinfo.river(); *//child-1 propity use in child-1* punjabinfo.punjab\_Cloth="shalwar kameez"; *//child-2 cass call* Sind info =Sind(); *//parent propirty call in child-2* info.id=11; *//parent function call in child-2* info.national\_language(); *//child-2 propirty call in child-2* info.sind\_language="sindi"; *//child-2 function call in child-2* info.sea();  *}*  *//parent class* class Pakistan{  *//parent propirty* late int id;  late String game;  late String flower;  late String bird;  late String color;  late String theem;  late String sweet; *//parent functions* void national\_language(){  print("nationl language");  } void national\_cloth(){  print ("national cloth");  }} *//child-1 class* class Punjab extends Pakistan{  *//child propirty* late String punjab\_Language;  late String punjab\_Cloth;  late String punjab\_Colur;  *//child function* void river(){  print("5 river in punjab");   }} *//child-2 class* class Sind extends Pakistan{  *//child propirty* late String sind\_language;  late String sind\_cloth;  late String sind\_colur;  *//child function* void sea(){  print("1 sea in sind");   }} |  |
| *void main() {*  *//name consrrucror call*  *Women ayesha = Women();*  *Male ali = Male();*  *//parameter consrucer call*  *Boy aslam = Boy("aslam", 44);*  *Boy akram = Boy("akram", 54);*  *}*  *//parent class*  *class Human {*  *//parametr consructor of parent class*  *Human({required String name, required int age}) {*  *print("$name, $age");*  *}*  *//name constructor of parent class*  *Human.details(int id, double gpa,*  *{required String name, required String city, required int age}) {*  *print("$id, $gpa, $name, $city, $age");*  *}*  *}*  *//child class -1*  *class Boy extends Human {*  *//parmeter consturc objects*  *//class+object+super+objec:object*  *Boy(name, age) : super(name: name, age: age) {}*  *}*  *//child class-2 use super.detail (super keyword +name of construct)*  *class Male extends Human {*  *//name constructor*  *Male() : super.details(1, 3.23, name: "ali", city: "lahore", age: 43);*  *}*  *//child class-3*  *class Women extends Human {*  *//name consructor*  *Women() : super.details(2, 2.45, name: "ayesha", city: "karachi", age: 54);*  *} //child class-3*  *class Women extends Human{*  *//name consructor*  *Women() : super.details (2, 2.45, name:"ayesha", city:"karachi",age:54);*  *}* |  |
| ***Menually call***  *void main() {*  *Male id\_1 = Male(1);*  *Male id\_2 = Male(2);*  *Male id\_3 = Male(3);*  *Male id\_4 = Male(4);*  *}*  *class Human {*  *Human(int id) {*  *print("$id");*  *}*  *}*  *class Male extends Human {*  *Male(id) : super(id);*  *}* | **Pass parameter dynamically to parent class constructor** |
| ***void main(){***  ***Male akram=Male(23, "ali");***  ***Male a=Male.name(88,12);***  ***}***  ***//parent class***  ***class Human{***  ***//parent paramet constroct-1***  ***Human(int id, String name){***  ***print("$id and $name");***  ***}***  ***//parent name controct-2***  ***Human.detail(int rollno, int age){***  ***print("$rollno and $age");***  ***}***  ***}***  ***//child class***  ***class Male extends Human{***  ***//child constroct-1***  ***Male(int id, String name):super(id, name){}***  ***//child constroct-2***  ***Male.name(int rollno, int age):super.detail(rollno, age){}***  ***}*** | **When we have multiple constructors in botth parent and child clasess** |
| ***void main(){***    ***Crow detail=Crow(12.3, "Khadim", 12,1);***  ***}***  ***// parent class***  ***class Animal{***  ***//propirty***  ***late int id;***  ***//propirty incilize***  ***Animal(int id, int age){***  ***this. id=id;}***  ***}***  ***//child class pick Animal parent***  ***class Birds extends Animal {***  ***//propirty***  ***late int rollNo;***  ***//propirt inclize***  ***Birds(int rollNo, int no):super(23,44){***  ***this.rollNo=rollNo;***  ***this.id=id;***  ***}***  ***}***  ***//child class pick Birds parent***  ***class Pigen extends Birds{***  ***//proprity***  ***late String name;***  ***//propirty inclize***  ***Pigen(String name, int rollNo, int id):super (12,45){***  ***this.name=name;***  ***this.rollNo=rollNo;***  ***this.id=id;***  ***}***  ***}***  ***//child claass pick Birds parent***  ***class Crow extends Birds{***  ***late double gpa;***  ***// is me sb ki propirty ay gi***  ***Crow (double gpa, String name, int rollNo, int id):super (23,12){***  ***this.gpa=gpa;***  ***this.rollNo=rollNo;***  ***this.id=id;***  ***print("$gpa, $name, $rollNo,$id");***  ***}***  ***}*** | **Agr kesi ki property late lga kr di ho to usy inclize krny ky ly last wali child class me sb ki property ay gi** |
| ***player in dart***  ***Function ky under ak asa nasted function hota ha jo aaccesable ho outside the function*** |  |
| class Human {  Human ({required String name, required int age}) { *// parameterized constructor* print("I'm $name, and $age years old"); }  Human.details(int id, double gpa, {required String name, required String city, required int age}) { print("$name lives in $city and $age years old"); } }  class Male extends Human {  Male(String name, int age): super(name: name, age: age) { print("Male class constructor!"); }  }  class Female extends Human { Female() :super.details(23, 3.34, name: "Fatima", city: "Lahore", age: 23) { print("Female class constuctor!"); } }  **main.dart**  class Human {  Human ({required String name, required int age}) { *// parameterized constructor* print("I'm $name, and $age years old"); }  Human.details(int id, double gpa, {required String name, required String city, required int age}) { print("$name lives in $city and $age years old"); } }  class Male extends Human {  Male(String name, int age): super(name: name, age: age) { print("Male class constructor!"); }  }  class Female extends Human { Female() :super.details(23, 3.34, name: "Fatima", city: "Lahore", age: 23) { print("Female class constuctor!"); } }  **main.dart**  import 'package:flutter/material.dart'; import 'package:hello\_world/inheritance.dart'; |  |
| void main(){  Human detail =Human(a:[4],b:{2},c:{"c":4});  Human detal1=Human.detail(1,2,3);  }  class Human{  Human({required List a, required Set b, required Map <String, int> c}){  print("$a,$b, $c");  } |  |
| void main(){  Human detail =Human(Male(44), Boy(442));    }  //parent class  class Human{  //parent constructor  //parent+child-1+chil-2 constroctr  Human(Male detail, Boy info ){  //print("$a,$b, $c");  }  //parent name costruor  Human.detail(int a, int b, int c){  print("$a, $b, $c");    }}  //chil class-1  class Male{  //child constrot  Male(int d){  print ("$d");    }}  //chil class-2  class Boy{  Boy(int c){  print ("$c");    }  } |  |
| void main(){  Human detail =Human (detail:Male(1), details: Boy(2));      }  //parent class  class Human{  //parent constructor  //parent+child-1+chil-2 constroctr  Human({required Male detail, required Boy details } ){  //print("$a,$b, $c");  }  //parent name costruor  Human.detail(int a, int b, int c){  print("$a, $b, $c");    }}  //chil class-1  class Male{  //child constrot  Male(int d){  print ("$d");    }}  //chil class-2  class Boy{  Boy(int c){  print ("$c");    }  } |  |
| void main(){  Human detail =Human (detail:Male(info:Boy(),infos:Student(a:Developer())));  }  //parent class  class Human{  //parent constructor  //parent+child-1  Human( {required Male detail} ){  }}  //chil class-1  class Male{  //child constuctor me (Boy class+Student class)  Male({required Boy info, required Student infos}){    }}  //chalid class-2  //Student class me Develper class  class Student{  Student({required Developer a}){  }}  //chil class-3  class Boy{  Boy(){    }}  //child class-4  class Developer{  Developer(){  }} |  |

|  |  |
| --- | --- |
| Abstract class  //abstract class tb banaty hn jb child classes me function common or or zarori hon gy  // A class created by an “abstract” keyword  //we can not create objects of abstract class  //Abstract class are alwys extends with other classes  //while inheriting child class must have to implement abstract method  //an abstract class can have one or more abstract mehod / function  Abstract method/function  Is ki body ni hoti like : void abc();  //abstract class / parent class  abstract class Human {  //absstract function  // ye function dosri class me implement hon gy  void abc();  void xyz();  *//abstract class/parent class* abstract class Animal{  *//abstract function* void voice(); } *//child class-1* class Dog extends Animal{  @override  void voice() {  *// TODO: implement voice* }  *//abstract class implement* } class Cat extends Animal{  @override  void voice() {  *// TODO: implement voice* }    } class Goat extends Animal{  @override  void voice() {  *// TODO: implement voice* }    } |  |
| **Fluter**  Fluter me her cheez widget hoti ha  **Run app**  Ak building function ha, jo ak widget ly ga  Esy jo b widget mely ga usy paint / draw kr dy ga  It accepts a root-widget and draw/paint on the screen  My base code is a root-widget (ye code khu bnaya live tamplet)  **Widget (**/ component, part of screen/ section)  Widget ak class ka name ha  Her property ky against ak widget ho ga  Youtube play list for widget  Firebase analystics (package of the week)  **MaterialApp**  Ak widget ka name ha is me pori applicate creat ho gi  **Scaffold**  Important widget ( her screen me design is sy hi banta ha)  **AppBar**  Use for app bar, top bar, bottom bar  **Material**  Is sy app ka desgine banta ha  **Style**  TextStyle  Use for text style font size, font style  Centre  Text ko center me lana  child: Center(child: Text("KHADIM HUSSAIN"),),  **Container (ye box hota)**  40 sy zayda margin or pedding ni deni  child: Container(  width: 400,  height: 400,  color: Colors.*yellow*,  margin: EdgeInsets.all(80), (4 tarf sy samae margin)  margin:EdgeInsets.only(left: 2,right: 4,bottom: 8, top:4), (specific margin)  margin:EdgeInsets.fromLTRB(2, 2,3,4),(apni marzi sy LTRB margin dena)  margin:EdgeInsets.*zero*, (ZERO MARGIN DENA)  margin:EdgeInsets.symmetric(vertical: 20,horizontal: 30),ver or hor margin dena  padding: EdgeInsets.only(left: 4,right: 4,top: 4,bottom: 5),  (same as margin)  **Decoration**  In container widget Color property doesnot work outside the decoration  import 'package:flutter/material.dart'; void main() {  runApp(  MaterialApp(  home: Scaffold(  appBar: AppBar(  title: Text("Functions"),  ),  body: Material(  child: Center(  child: Container( *//box* width: 200, *//box width* height: 200,  margin:EdgeInsets.symmetric(vertical: 20,horizontal: 20), *//box margin* padding: EdgeInsets.only(left: 4,right: 4,top: 4,bottom: 5), *//box paddin* decoration: BoxDecoration( *// container ki decoration* color: Colors.*yellow*, *//color dena* shape: BoxShape.rectangle, *// box ki shap* gradient:LinearGradient( *// gradien line mem dena* begin: Alignment.*center*, *// gradien start point* end: Alignment.*bottomLeft*, *// end point* stops: [0.50,0,1], *// stop me % color fully green ya red ho ga* colors: [Colors.*green*, Colors.*red*, Colors.*grey*],*// color range* ),  *//border: Border.all(width:13, color: Colors.black, style: BorderStyle.solid), // 4 trf ak hi tara ka border lagana  //border: Border.symmetric(vertical: BorderSide(width: 12,color: Colors.brown), horizontal: BorderSide(width: 11, color: Colors.black)),// apn marzi sy border banana  //borderRadius: BorderRadius.all(Radius.elliptical(10, 10)) // box ko round krna apni marzi sy* borderRadius: BorderRadius.only(topRight: Radius.elliptical(10, 20), topLeft: Radius.elliptical(10, 20))   ),     ),  ),  ),  ),  ),  );  } |  |
| **Button sy ply jo icon hota ha esy leding icon khth hn**  **Bad me jo ho ga trailing icon** |  |
| import 'package:flutter/material.dart';  void main() {  runApp(  MyStatelessWidget(),  ); }  class MyStatelessWidget extends StatelessWidget {  @override  Widget build(BuildContext context) {  return MaterialApp(  home: Scaffold(  appBar: AppBar(  title: Text("Container Widget"),  ),  body: Material(  child: Container(  width: 400,  height: 400,  child: Text(  "Hello World",  style: TextStyle(fontSize: 30),  ),   margin: EdgeInsets.only(left: 50, top: 50),  padding: EdgeInsets.all(30),   decoration: BoxDecoration(  color: Colors.orange,  shape: BoxShape.rectangle,  gradient: LinearGradient(  begin: Alignment.topRight,  end: Alignment.bottomLeft,  stops: [0.2, 0.5, 0.8, 0.9],  colors: [  Colors.brown,  Colors.white,  Colors.green,  Colors.yellow  ],  ),  borderRadius: BorderRadius.only(  bottomRight: Radius.elliptical(50, 50),  bottomLeft: Radius.elliptical(50, 50),  topRight: Radius.elliptical(50, 50),  topLeft: Radius.elliptical(50, 50),  ),  border: Border.all(width: 10, color: Colors.pink),  ),  ),  ),  ),  );  } } |  |
|  |  |
| import 'dart:ui';  import 'package:flutter/material.dart';  void main() {  runApp(  MyStatelessWidget(),  ); }  class MyStatelessWidget extends StatelessWidget {  @override  Widget build(BuildContext context) {  return MaterialApp(  home: Scaffold(  appBar: AppBar(  title: Text("Container Widget"),  ),  body: Material(  child: **Container**(  width: 200,  height: 150,  *//color: Colors.yellow,* alignment: Alignment.*topRight*,    child: Text("KHADIM",  *//textDirection: TextDecoration.rtl,* textAlign: TextAlign.justify,  overflow: TextOverflow.ellipsis, *// zayda text honi ki sarorat me ..... lga dy ga* softWrap: false, *// ak line jo jeta text a sky bs wohi dekhay* maxLines: 2, *// jetni line ka text dekhan ho  //child: Text("#",  // semanticsLabel: "my code", //user ky ly text me # nazar ay ga lekin is me hum apni yadast ky ly jo marzi likh lain*  ***STYLE PROPORITY***style: TextStyle ( fontFamily: "TiltPrism", color: Colors.*white*,  *//textScaleFactor:5, // text ka size zayda krna* fontStyle: FontStyle.italic,  fontWeight: FontWeight.*bold*,  fontSize: 30,  letterSpacing: 13,  wordSpacing: 12,  height: 1   *//backgroundColor: Colors.grey,* ),  ),     margin: EdgeInsets.only(left: 100, right: 50, bottom: 40, top: 200),  *//padding: EdgeInsets.only(left: 10, right: 20, bottom: 30, top: 40),* **decoration**: BoxDecoration(  color: Colors.*blue*,  shape: BoxShape.rectangle,  border: Border.all(width: 3, color: Colors.*black*),  borderRadius: BorderRadius.only( *// APNI MARZI CORNER BANANA* topLeft: Radius.elliptical(420, 420),  topRight: Radius.elliptical(420, 420),  bottomLeft: Radius.elliptical(420, 420),  bottomRight: Radius.elliptical(420, 420),  ),  *// borderRadius: BorderRadius.circular(335),  //borderRadius: BorderRadius.only(  // bottomRight: Radius.elliptical(50, 50),  //bottomLeft: Radius.elliptical(50, 50),  //topRight: Radius.elliptical(50, 50),  //topLeft: Radius.elliptical(50, 50),  //),* **gradient**: LinearGradient(  begin: Alignment.*centerLeft*,  end: Alignment.*topLeft*,  colors: [Colors.*orange*, Colors.*red*,Colors.*yellow*],  ),  ),  ),  ),  */\*child: Container(  width: 300,  height: 250,  child: Text(  "Hello World",  style: TextStyle(fontSize: 25),  ),   margin: EdgeInsets.only(left: 50, top: 50),  padding: EdgeInsets.all(30),   decoration: BoxDecoration(  color: Colors.orange,  shape: BoxShape.rectangle,  gradient: LinearGradient(  begin: Alignment.topRight,  end: Alignment.bottomLeft,  stops: [0.2, 0.5, 0.8, 0.9],  colors: [  Colors.brown,  Colors.white,  Colors.green,  Colors.yellow  ],  ),  borderRadius: BorderRadius.only(  bottomRight: Radius.elliptical(50, 50),  bottomLeft: Radius.elliptical(50, 50),  topRight: Radius.elliptical(50, 50),  topLeft: Radius.elliptical(50, 50),  ),  border: Border.all(width: 10, color: Colors.pink),  ),  ),\*/* ),   );  } } |  |
|  |  |
| import 'dart:ui';  import 'package:flutter/material.dart';  void main() {  runApp(  MyStatelessWidget(),  ); }  class MyStatelessWidget extends StatelessWidget {  @override  Widget build(BuildContext context) {  return MaterialApp(  home: Scaffold(  appBar: AppBar(  title: Text("Container Widget"),  ),  body: Column(  children: [  DefaultTextStyle(style: TextStyle(fontSize: 44,color: Colors.*white*,  fontStyle: FontStyle.italic,  fontWeight: FontWeight.*bold*,  letterSpacing: 13,  wordSpacing: 12,  height: 1,     ),  child:  Container(  width: 550,  height: 550,   color: Colors.*greenAccent*,  *//color: Colors.yellow,* alignment: Alignment.*center*,  margin: EdgeInsets.only(left: 100, right: 50, bottom: 40, top: 200),   child: Column(  children: [  Text("KHADIM"),  Text("HUSSAIN"),  ],),  *// gradient: LinearGradient(  // begin: Alignment.center,  //end: Alignment.centerLeft,  //colors: [Colors.greenAccent,  //Colors.white,  //Colors.black],  //),* ),   ) ,  ]  ),   ),   );  } } |  |
| **TextField** widget  import 'package:flutter/material.dart';  void main() {  runApp(  MaterialApp(  home: Scaffold(  appBar: AppBar(  title: Text("text widget"),  ),  body: Material(  child: Center(  child: Container(  margin: EdgeInsets.all(22),  child: TextField(  undoController: UndoHistoryController(),  maxLength: 39,  textCapitalization: TextCapitalization.characters,  textAlign: TextAlign.center,  keyboardType: TextInputType.*emailAddress*,  decoration: InputDecoration(  hintText: "Enter Your Name",  label: Text("Name"),  icon: Icon(Icons.*person*),  prefixIcon: Icon(Icons.*access\_alarm\_outlined*),  suffixIcon: Icon(Icons.*ac\_unit*),  border: OutlineInputBorder(),  hintStyle: TextStyle(fontSize: 21, color: Colors.*green*),  labelStyle: TextStyle(color: Colors.*red*),  ),  ),  ),  ),  ),  ),  ),  ); } |  |
| **Row and column** me children me kesi b tara ka widget a skta ha  Container(  padding: EdgeInsets.all(4),  color: Colors.*grey*,  child: Row(  children: [  Expanded(  child: Container(  padding: EdgeInsets.all(4),  color: Colors.*green*,  child: Text("khadim"),  ),  ),  Expanded(  child: Container(  padding: EdgeInsets.all(4),  color: Colors.*yellow*,  child: Text("Hussain"),  ),  Alt+ener |  |
| KHADIM MYBASECODE  void main (){   MaterialApp( home: Scaffold( appBar: AppBar( title: Text("my app"), ), body: Material( child:Container ( ), ), ), ); } |  |
| Colum & row |  |
| **ListView**  child: ListView(  children: [  Container(  alignment: Alignment.*center*,  padding: EdgeInsets.all(3),  color:Colors.*yellow*,  child: Center(child: Text("pakistan"),),  ),  leading: Icon(Icons.*person*), list ky front pr trailing: Icon(Icons.*perm\_camera\_mic*), list ky end pr |  |
| **# listview**  **import 'dart:js';**  **import 'package:flutter/material.dart';**  **void main() {**  **List<String> newsChannel = ["JEO NEWS", "EXPRESS NEWS", "SMMA NEWS", "7 NEWS", "JEO SUPPER NEWS", "PTV LIVE", "PTV NEWS"];**  **List<String> job = ["Private Channel", "Private Channel", "Private Channel", "Private Channel", "Private Channel", "Private Channel","Govt Channel"];**  **List icon = [Icons.account\_balance\_wallet, Icons.account\_balance\_wallet, Icons.access\_alarm\_outlined, Icons.ac\_unit,Icons.account\_balance\_wallet, Icons.access\_alarm\_outlined, Icons.ac\_unit ];**  **List trailingicon = [ Icons.account\_balance\_wallet, Icons.account\_balance\_wallet, Icons.access\_alarm\_outlined, Icons.ac\_unit,Icons.account\_balance\_wallet, Icons.access\_alarm\_outlined, Icons.ac\_unit];**  **List colors = [Colors.green, Colors.red, Colors.blue, Colors.green, Colors.red, Colors.blue, Colors.orangeAccent];**  **runApp(**  **MaterialApp(**  **home: Scaffold(**  **appBar: AppBar(**  **title: Center(**  **child: Text("PAKISTAN NEWS CHENELS"),**  **),**  **),**  **body: Material(**  **child: Card(**  **elevation: 44,**  **child: Container(**  **margin: EdgeInsets.all(10),**  **child: ListView.builder(**  **itemCount: newsChannel.length,**  **itemBuilder: (context, index) {**  **return Container(**  **color: colors[index],**  **margin: EdgeInsets.all(4),**  **child: ListTile(**  **textColor: Colors.white,**  **iconColor: Colors.white,**  **title: Text(newsChannel[index]),**  **titleAlignment: ListTileTitleAlignment.center,**  **subtitle: Text(job[index]),**  **leading: Icon(icon[index]),**  **trailing: Icon(trailingicon[index])),**  **);**  **},**  **),**  **),**  **),**  **),**  **),**  **),**  **);**  **}** |  |