- Oi] Draw object layout of below code lexplain the internal working in detail.
- Derived class inherits from base publicly

 Derived defines its own i & d, which shadow base's i & d.

 Fun() is overniden in Derived, but not virtual, so no vtable
 is created

Base Object (bobj)

inti	4 bytes
float +	4 bytes
double d	8 bytes
Total size =	= 16 by tes

Derived Object (dobj)

Base Class Men	ibers
inti (bose)	4 butes
float + (base)	4 byty
double d (base)	8 butes
Derived Class M	embers .
int i (derived)	4 bytes
(Padding)	4 bytes
double d (derived)	8 bytes
Total Size = 32 by	les

genired class inherits from both base 1 & base 2 osing nostiple Inheritance. perved introduces its own members (ind) & overrides force) base 1 object layout 4 64 65 int i 4 bytes float of That apitagor water wast ! Total 8ize = 8 bytes Home Delied composition base 2 object layout Mindu i dat 4 bytes intj Catyon + dealt 4 bytes float 9 odyda dy ided at soil untol Total Size = 8 bytes Derived Chiect Louiset Derived Object layout Base 1 Members int i (baser) Other a cool 4 souls float & (base) while & (spi) of Base 2 Members int j (base 2) of the condition in float 9 (base 2) Denved Class Members int i (derived) (padding) double of (derived)

Derived class inherits from base publicly
base has: A non-virtual funct

A virtual gun()

Derived has:

A virtual funco (overrides base: fon())

loted & = 9508 lotel

209

1) p tool-

A non-virtual gon() (hides bose::gon())

A new virtual function sun()

vintual functions create a vtable 2 vpts base object layout

int i ubytes
float f ubytes
vptr 8 bytes
Total Size 16 bytes

Derived Object Layout

Base Class Members
int i (base) 4 bytes
float & (base) 4 bytes
UPER (bose) 8 butes
Derived Class Members
int i (derived) 4 bytes
(padding) 4 butes
double d (derived) 8 butes
Total Size = 32 bytes

upti in Derived points to Derived's Vlable, which werendes base: fon () & adds Derived: sun() perived :: gones hides base: gones, but since base: gones Hos pend, Derived does not override it in a vtable. base vtable Address: Derived vtable Address Function 2000 (base) 2000 (base) gon() Non-virtual, not in vtable 3000 (derived) ton() - (Not in base) 5000 (derived sun () viable is base contains only gon(), as fon() is non-virtual 1) Derived publicly inherits from base; where: base has the vintual functions (gon(), son() & the noninterest functions (funct, ron()). Derived: overrides fun (), gon() & run() (naking run() virtual) Hides sun() by redefining it (but does not override) Virtual function generate vtable & vptr. base object layout

2300) 0000

(980d (base)

(Contrivació)

weter mil) (Jaor

Dock

int i 4 butes

Float of 4 butes

Votor 8 bytes

Total 812e 16 bytes

uptor is added due to virtual functions. vtable in base contains gunco son() Derived Object layout Base Class Members Inti (base) 4 bytes float + (base) 4 butes Upter (base) 8 bytes Denived Closs Prembers inti (derived) 4b4kg ... (padding) double d (derived 8 buts Total Size = 82 bytes Vtable los mob tot) if patatober pol conce estill what torde go mot visite Derived Vtable Address Function Base Vtable Address 2000 (base) 6008 (derived) gon() 3000 (base) 3000 (base) Son () soco (derived) (Nonvirtual) fonc) 8000 E (derived) runco (Non vintual)

pertired publicly inherits from base, where:
base has be virtual functions (gun(), sun()).

perived class introduces:
A new virtual function fun()
A non-virtual redefinition of gun()
An override of sun()

base object layout

int i	4 bytes
float +	4 butes
NDFL	8 hutes
Total size	= 16 bytes

derived object layout

int i (base)	4 hute
float & (base)	4 butes
uptor Chase)	8 hutes
Derived Class Mer	nber 5
int:	4 hutg
int: (Padding)	4 butg 4 butes