Handek Soni 20 6530003 Semester 4 Name: Hardik Praum Dun Roll Number: 201320023 Computer Sunce and Engineering Software Engineering theory and Object Oriented Bragnaming ino & niver Pandik Pravin Doni \* ROll No: - 20 (8 30 053 \* Subject: - Software Engeneering Theory (cszazo # include (idateream) # include (nector) # include (cmath) using namespace std; class Pr?malfyTest private: static Primakty Test \* my Test;
int netored: Il Number of Stored Prin
int \*primes: Il Pointer to Buffer int bufaize: Il dize of the Buffer Il wandtructor of class Prima Pity Test remulity Teat (int bufaire) [ [ sieted ] this way = new int [ butsize]; this - bufage = bufaige; I The first trime to 2 this - instand = 1;

Hordor yours () Date D 506230053 A tubuso (0) = 5? Il Distructor of the Class Primality ~ Primality Test () delete [] this - primes; public: & tatec Promaty Test EnewTest (int buteize = 100) 11 If the my Test is NULL Pointer then, cheate a new instance. if (-my Test == NULL) elber = new Prematity Teat (bufise); Il It Bufaize is unequal then (scate a new instance Pf (-myTest -> bufoize != bufoize) Primality Test \* t = new Primality Test (toxpic) for ( Int 120; i ( min ( my Test > nstone 1, butise) Il Populating a temporary buffer with Pritial Enstance's paine. filaming + tost ym - " [i] asming + tt 2- nstored; Il Deleting the gredundout initial buffer delete \_ my Test -> primes; & smy Test = tig

201530023 I Returning the instence accor to parement & seturn #\_myTest; void test (int n). 1 9/ it is out then rettier prime has composite 67 (N==0, 11 N==1) cout 14 h << "is neither prime
has compasse "(eat) of 2 is there, it is prime else if ( n == 2) cout (( n << "is paime." ( and ) 11 man factor is less than In+1 int limit = squt (n) +1; Il of the number can be checked in the given buffer. if ( limit for primer [ nstoned - 1]) Il Check in the buffer if we found a fector, it is composite for (int 120 jil ustoned jitt) ? [ ( n . 1 . persues [i] -- 0) Mes) ". of Product 29 rotop 7 [(en) brusof 29 rotop7 returns

Hardik Soni

Hardik Som 20 (530023 11 1/ we dodn't find a factor then It is late cout of n ((" is lime." (gend); else Il dector to store primes as save Of Erab to thouses wecker (int) serve (limit +1,1); for ( out b = 5? bx b ( = limit; b+t) 11 If prime (p) is not changed Il then it is paine. if (selve [p]) Il Update all multiples 11 of p greater than or Il equal to the square of it Il numbers which are multiple Il of p and are less than p Hore already been marked. for (int 12 ptp ; (- limit ; it=p) seive [i] = 01 ent than i nstoned = 0. for (inting; i ( serversize () ; itt) ([i) suisz) 1: if I notoned >= bufsize)

Hardie Doni Classmate 20(230053 flag= o; barabi 12 95 found that buffer is not sufficient at any point then of breaks and wient wooder is [++ byoten ofen++] comined It buffer memory was sufficient Il Checking i f the Number is Prime frampaste tor int 32 0; i ( netoned; it) Chahin the buffer it we cont << ~ << "is composite."<< we didn't find a fxPrule 1° PS not sufficient 11 Butter Hemory 10 cont (("ERROR: Butter Size overflow." ((end);

classmate Primality Test. Premality Test & Premality Test: - my Test = much Primality Test: new Test (). test (2958); Primality Test: new Test (). test (823); Primality Test: new Test (). Lest (83+7) Johnno:

Handik Soni 20 (530023 #include (include the am) 2. #include (list) # include (utility) # include ( uector) # Include (algorithm) using namedpare stay Here, in the about woldblack, I have induded all the important! nequisite : ( Mamen) asseptedil · iostream - pravides basic Input autent denvices. · 184 - are sequence containers. that allow constant time insert | er use operati anywhere within the sequence of itchatea in both disections operator != , > <= and >= b/w
objets of same type. · vertor - sequence containers representing arrays that can change the size during suntime. class bustomer ( private: string name; Il name is declared as string Size to Polis II Id is declared as united as Static Sizent When histomers Number of Instances of bustomer are unisqued int stateally dologed public:

Pandik Dong 201230053 Lustomen (etving name: "NA") (

this - name:

this - Pd = ++ Numbustomer: ~ lugamer () {

this > name = "NA"; Intend ostream Ropendor ( Ostream Ros, const Customer 8 (454) cout ( " " Customer" ( cond);

cout ( " Name:" ( cond);

cout ( " Name:" ( cond);

cout ( ust.id ( cond); cout (< end); freend istream Expender >> (intreams is, const cout << " \* histainen \* (< end); cout ( " Name: "; is >> wst. name; cout ( "TD: ". is>> cust id; g; 11 End of Uses 'Customer' \* Custamen (string name = "NA"): the Constructor of the class to a Customer (): destructor for Class Customer

Hardik Soni 20 (530023 Page 4 \* Insend ostream & operator & Costream & of constant terrar : The function is responsible for cust handling output stream of class Customer. In a given format it prints details. of class customer. \* triend istreum loperator >> ( istreamling handing triput stream of dans was about it takes details of deas wastomen elan Product Items

private: strong fette; Il tille' is stored as string

size t id: Il'id' as unsigned int

dtate size t: Number at instances as

float prices: Il number at instances as

int copies: a static unsigned int. broduct Item (string title = "NA", float price = 0)( this - Id = toby ++ Numbroductitem; this - price = price; thes - copies = 0; ~ Product Item () { this + thhe = "NA". this - coppes = 0; this > price = 25

Hardin dani 200530023 treend osteream so perator << (ostream & os, const cout << " \* \* Product I tem \* \* " << end!;
os (( " Title:" << pi. +9+le ( " ID: " << pi. \*d << end!; 05 < 1 "Price! ( pioprice < " copies! ( piopries seturn os; Insend igner Doperator >> (istream 8is, const cout (( " \*\* Product. Hem \*\* " (Kend); 8 pm) cout (1 " Title". is >> pi, title; cout (("ID:"; 12 >> pi.ig. cout (1" Price: ) is >> price; cout ( " captes:"; is >> pi. upies; cout ( stal: enal; Return is; Product them Ropenstown (int a) (

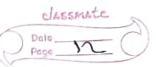
this + copies += a; 11 Adding copies to the

Lesture of this; Product story Product them & operator = ( Product them count & pr) < it ( thes 1 = 8 ps) Il over boading Assignment spen abor

Frede Asbreatt classmate ( 1 Proge 15 29 6730053 this - texte = protitle; this id pired;

this price pippies; noturn \* this; \* Product Hun (etning title = "NA", float price = of Product I bem ~ Product I fam (): The destruction for the class Product Hun. A freeze Ostream Lopenston & (ostream 80) const (valuettem 4) The Junelian is Responsible for handling output stream of class the contents of days Product them. namely: little, id, price and whice. \* treend Estream Ropenston >> ( istream lies corret Roduk Iden The function is suspensible for 3 pr): handling input stream of class broductor In the given format it takes the itent of chow Goduck Hem. numely. Atherid, price and whier. overleads " for Produkthem, de that it helps us to add a certain number

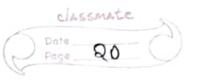
## Houdik Doni



of products a' to order. \* Product them Soperator = ( Product Item const &pi) = This funder is responsible for over to sperator operator of and the theory tirest if given reference es not iqual to green instance if it not then assign and then returns it return it. chars order! distatic Dize - & Numbroley Customer ! vertor (Product Stem) prodo; publici order (lustomer bine-c) this - prode clearly; size to getide ) court 11 getter for id return this id;

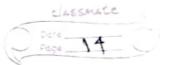
ineck dib no H 20 ( 5300 23 treend osteream La penaton K (ost ream, 201, const coul << " \*\* Order \* \* " << end! 05 ( 6 0. 0; cout ( " ID: " ( cord); os << 0.1d; went ( " Producto Size: " ( o. prodn. & De 1) ( enh); for ( auto & prod : 0. prodo) or K cong ( brog ? cout << endl; deform or? Order & openation+ ( Product Item & p) this prodo puly back (p) Il Adding a geturn at thes; Produktion to Order Sopenator = ( order word 20) 8+ ( this 10 80) Hosignment operator this - id = 0,id; I'ma of loss order!

Hardik dans 20(130025



tolend istream Sopertor) (istream Sis, Orderso) cout << " xx brobond xx" << etd: end! been moset & "ID:" 11 the Input stream used for Formalled Tujut to class Order. 161 ye mosetto tuynell biso 120 1) you mose to tugat 11 ,000 (12; gotarn is:

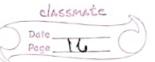
Haydik deni 20 (530023



order ( motomer ) inc. (): The unstrador Order. ~ order (): the deal nuclear for the class & freed estream Soperator ( ( estream dos, const Order &o): thes function is responsible for autput output stream of class order. In the gruen farmat et prints entities de class order: motomer, ID, Broduct Dize and Products Information. & friend estream toperator > ( esteream dis, this function is responsible for input
stream of class order. In the given
formatit takes input for wateren, ID. overloads the operator 't' for class order. It helps you and a certain oproduct Them to class order. A Order Roperator = (asker const 80): This is sesponsible for exclouding the operator's! for class 'order' It checks it given reprense to not equal to given reference to not equal to given instance if it is not then assigns it and then returns it lawigns.

Hardik Doni 20 (\$30023 chas shapping Basbet Size + ide Static about Numberbet; Customer y 11st (Odder) ordens; publec: Shapping Backet ( histories woust 8 in-c) this - id = ++ NumBasket; "Shopping backet () this c. ~ lustomer 1): this - orders clearly Frend ostream loperator (1 (ostream dos, count ((" \* x snopping Basket xx" ( end); is , de >> 20 mut ( "ID:". would (" orders size. " << orders size () << end); Oviged. ansbra. de = +; odus) vot 39+12 Sb. orders. Indes ; i+++) went ? it. operator\*(); coul (1 und);

Handik Soni 200530023



getunnos;
friend istream Soperator) (intream 8is,
3 hopping Bas ket & sub)
count ((" & hopping Booket" ( end);
cout (" ID:";
; b), id;
(8) 36. ()
Schann is:
1 Marie 13
Shopping Backet Roperator + ( order 8 p)
1) Adding Dada
this - orders fuch back (p); Itto SB
acture & tak:
Shoppingballet & operator ( order & intorderid)
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Je turn * this:   Removing Drdes from  Se turn * this: Lhopping Bashed
20011100
Shopping Basket Rope Ration = ( Shopping Basket word 856)
it (this ! = sb) (de shading the
it (this ! - sb) ! avaloading the Assignment operator
this + 9d = shid;
this > orders · clear ();
7.

Handik down ) Date Page 17 20 (2 30023 this or dero. assign (sb. orders. begen ().
Sb. order. wd() J. Il End of class & hopping Basket. to shopping booket (histories & wond in c). The hund truston for the class shapping Basket, this enstances for the given shapping Basket is addigned to the given Customes Reference as to but t riend ostream Lopezator << (ostream los shapping basket & Shapping Basket & Shi this function is responsible for output sereamof class shopping basket. In the green format it of friend interesm & spender & (introduction besity & Shapping Backle 628 this fundion is responsible for tuput others of Class Shopping Basket. In the given format

Pege 18 20 (530023 it takes input for ID and customer. are one overloading the operator 't' for class shapping basket in: we are adding Order p to orders entity
of class Shopping basket we are overlanding the operator - ' too class & happing Bookelt. In: this - orders. Just back this - orders. remain if [Lorderid] (ardern) return n. getidl) == order we are checking it the ordered of Order n is equal to the gun ordered to remove \* Shapping Basket Esperator = ( shapping Basket want Sit): This function is exesponsible for overloading the operator '=' for class shopping basel. It checks if given instance of your reference is a qual to given instance of your shopping baselt! if it is not then assigns all insulpanding suffices namely:

Lustancer, JD and orders and then returns

Hardik Sani

Handik Som 2068 30053 I tradealing the state whichter of the Respetitive chases. Customer: Numbustanes = 0. sizenh Product I tem:: Num Product Tem > 0. size-t Order: Numbroler = 0; size-t Shopping Baskel: Numbasket = 0: speak Il All the unorigied rearrables \* Main \* int main () ( 11 execute a materner Wateres \*c = New Customer ("N: Khi )"); Product I tem \*p = new Product I tem ("Sametting") Order to 2 new Order ( \* ( ); 1 add 10 copies of p to o onef = onet + \*p + 10, Shapping basket \* 5 = new shapping basket Shapping Batelt & Shap = x 3; Shap = Shap + onet; shap = shap - onet; getid(); return 0;