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Programming Architecture Cheat Sheet by kniz via cheatography.com/123738/cs/23432/

,	UI event handling	client ,
, , , Product	msg receiver , msg	Product, ConcreteProduct, Creator, ConcreteCreator
AbstactFactory, ConcreteFactory, AbstractProduct, ConcreteProd- uct,Client	Handler(Handler), ConcreteHandler	
client , Product , Product	msg receiver, sender (= /	Product Creator .
	msg ,	- Adapter
	-	client ,
ADT ,	Container	ObjectAdapter(), ClassAdpater() 2 . Target= , Adapter, Adapte-
Builder= API, ConcreteBuilder= ,	container , API	e()
Director= workflow, Product= ADT	,	Adapter vs Proxy
Product , Product	Aggregate(Container ADT), ConcreteA- ggregator, Iterator, ConcreteIterator	Adapter interface vs proxy realSubject redirection
		Proxy .
VS	- Command	
3		•
j j	, ,	·
		, ,
	Command(API), ConcreteCommand,	
	Invoker(), Receiver(client)	Abstraction, RefinedAbstraction(client API), Implementor(ADT), Concre-
	, , ,undo	teImplementor
		, ,
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Adapter vs Bridge	- Composite	- Observer
client . Bridge .		Subject(Observer , notify() observer), ConcreteSubject,
- Mediator	, API	Observer, ConcreteObserver(subject ConcreteSubject notify .)
workflow .	Component(client API), Leaf(), Composite(Component	1:N sender, receiver , ,
interaction ,	API)	
interaction	client , hierarchy	- Strategy
Mediator, ConcreteMediator, Colleague, ConcretreColleague	(1 ,)	,
Mediator , ,		Context(client API), Strategy, ConcreteStategy
, Mediator	- Visitor	
Facade vs Mediator		, ,
Facade Interface vs Mediator interaction .	,	, ConcreteStategy Stategy , .
Facade vs Mediator .	Visitor, ConcreteVisitor, Element,	
	ConcreteElement	SOLID - Single Responsibility Principle
- State	,	
, if-else		?
	ConcreteElement Visitor .	
Context(client API), State, ConcreteState		
state , State state .		
2		



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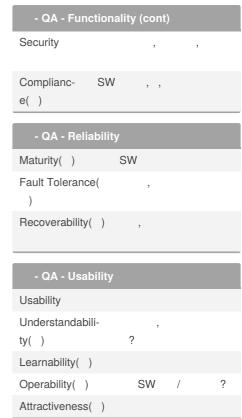


SOLID - Open Closed Principle
, .
SOLID - Liskov substituion principle
SOLID - Interface Segregation principle
? .
? (mixin, interface), Delegation
SOLID - Dependency Inversion Principle
' , . (ADT) ()
? .
Coupling vs Cohension
-> (, Composition,)
-> , ,

	•
	System Service (FR) Context(NFR)
SDLC	Water fall, Incremental, Evolutionary, Spiral Iterative, Agile, RUP
RUP	Inception, elaboration, construction, transition
Increm- ental	RE RE, code code, Test
Validation vs Verification	Verification , Validation

(cont)	
RE	Feasibility Test > RE Elicitation > Req Specification > Req Validation
Elicitation	System model Workshop, Brainstorming, survey, interview, role playing, protot- yping . Prioritizati- on&Negotiation NFR . (FR)
Negoti-	ranking, ahp,
ation	grouping, bubble sort, hundred dollors
Specif- ication	1.
SRS	Software Requirement Specification (). Plan .
Validation	()
- QA - F	unctionality
Suitability()

interaction





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Accuracy

Interoperability(



- QA - Effectivn	ness
Effectiviness	
	?
TimeBehavior())
	?
Resource Utilization	n(
)	

- QA - Maintair	nability
Analyzability()	SW
Changeability()	
Stability()	SW
Testability	SW

- QA - Porta	bility		
Adaptability(SW		
Installability(
Co-existency(,	SW

- QA - Portability (cont) Replaceability() SW

- View	points 4+1
Viewpo- ints?	. View . Logical Views , Process View , , Development (,) , Deployment
Use- Case view	Activity/Info Flow Diagram, UseCase diagram
Logical View	Sequence Diagram, Domain Model Class Diagram
Develo- pment view	component diagram, package diagram
Domain Model?	RE Conceptual class diagram.
Process view	sequence, activity diagram
Physical view	deployment diagram

Architecture concerns	,
- GRASF	,
Responsibility?	contract . / . , private
GRASP	coupling, cohension, expert, controller, creator, don't talk to stranger
Low coupling ?	. , ,
cohension ?	3
Inform- ation Expert	, private info (encapsulated) .

Quality l	Life cycle		
Process Qu	ality		
Internal QA	QA		
External QA	Stake holder	QA.	2
Quality in use	QA (()	

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- GRASP (cont)

Creator A B , B , B aggregate B A B .

controller

Don't talk to stranger

- ADD

ADD? Architecture Design Methodology

Plan -> -> Architecture Driver ->
do NFR Style + FR ->
and -> Usecase, QA
check contraint ->

- Unified process

UP inception phase, elaboration, construction, transition

phase test, code, planning, Req,
discip- analysis & design, business
lines modeling, deployment, configuration & change management,
Project management

Inception Business modeling, Req ,
phase Prototyping, feasibility study

- Unified process (cont)

Elabor ADD Baseline ation Architecture . Baseline archirecture skeleton architecture elaboration .

- Pattern, Style, Idium

Architecture == Architecture Pattern
Style
Pattern? (,)
.
Design components subsystem
pattern?
idium

Associ-

Association

Aggregation

Composition

Source(), (Stimulus), (Artifact), (Environment), (Response), (Response Measure)

(cont) Modifi (), , LateBinding ability () (, , , , (HW), () Ping,Echo(,), HeartBeat(), () /Node , (), (write), (, , AccessControl(), ()

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UML	
class diagram	class, interface, component, visibility
deployment diagram	artifacts(file, db), node, components
component diagram	port, provided interface, required interface, component,
sequence	lifeline, message, interaction use,
activity diagram	swim lanes, merge node, decision node, initial node, final node, merge node, fork node
data flow	external entity, process, datastore

- Batch Sequencial

Data Flow

Data Flow AS . . input .

Program, Data Store

()

Ding and Filter

input latency

Data Flow

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- Pipe and Filter (cont)

3 3

., , , .

Batch , &

Sequencial .

- Process Contro

Data Flow

Controller, Actuator, Process, Sensor

Controller Actuator start/stop

. Actuator Process

Process input start/stop
sensor Controller closed loop

- Process Control (cont

- Repository

Repository, Components

. interaction

, BackUp&Restore , components / (interaction),

, components

- Blackboard

Data Centered

Blackboard, Control, KnowledgeSource

KnowledgeSource 1
. Blackboard KnowledgeSource blackboard .
Control .

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- Blackboard (cont)

?

KnowledgeSource . . . blackboard .

. KnowledgeSource

- Layered

Hierarchical

Layer

. Layer layer .

?

, layer

- Layered (cont)

, Exception Handling depth .

- PlugIn Architecture

Hierarchical

CoreSystem, Plug-in modules

App PlugIn . coreSystem .

- Virtual Machine

Application, Virtual Machine, Existing Platform

, SW

- Non-buffered event invoc

Implict asynchronous communication software

Event source, event listener

interaction .

listener / , (source, listener

listener , ,

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- Buffered Message Based

Implicit Asynchronous communication

MessageBroker, Consumer, Producer

Producer msg xml broker . Broker , borker route consumer .

Producer Consumer idle , , producer

, ,

- Client - server

Distributed

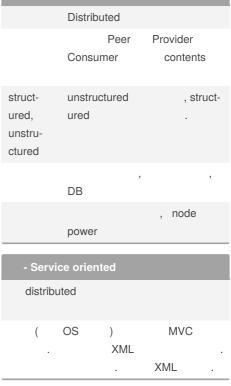
Client, Server

tier .

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- Client - server (cont)	- Dispatcher (cont)	- P2P
, Control	Broker , .	Distributed
? . (presentation, businiess logic), ,	- Broker distributed	Peer Consumer
	Broker, Client, Servant	struct- unstructured
- Multi tier Distributed Tier	CORBA . Node Broker Broker Node Servant Node Node	ured, ured unstru- ctured
Layer vs Layer , Tier Tier	interaction ,	, DB
tier , ,	, (fault-torelance),	power
	, , , , , , , , , , , , , , , , , , ,	- Service oriented
- Dispatcher		distributed
Distributed	- Master slave	
	Distributed	(OS) . XML
Client, Broker, Server	Master, Slave	. XIVIL
	Master Slave	
Server . Broker Server load	fault tolerance, (slave)	
Server . Broker Server load Server client . Broker tier , Server Broker register .	fault tolerance, reliability	
Client-Server , , ,		





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- Service oriented (cont)	- micro service (cont)	
?	, , , , , , , , , , , , , , , , , , ,	
, ,	- MVC	
- micro service	View Control , Model impact .	
Distributed		
SOA . SOA monolithic . interaction . (DB) Microsoer-	- PAC	
vice API encapsulation . DB DB .		
RESTful? API . json https . RESTful API HTTP GET, POST . API .		
, . , /		



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