Final Review

Reading & Vocabulary Development for CS50x Learners

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Winter 2024

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❑ Review 1 (Weeks 0–2)

Fill in the blanks with the words below.

employee - recruitment – booming – decentralized - platform - compiler – assembler - data warehouse - DevOps – efficient code - optimization - scalability - allocate memory - disaster - resource consumption - business acumen - thorough knowledge - environmental sustainability - familiarize - urgency

In today's _____ (1) technology landscape, companies must constantly adapt to rapid changes. Businesses are investing heavily in building a scalable _____ (2) that supports distributed systems, remote operations, and flexible development environments. Organizations that embrace _____ (3) models often gain a significant competitive edge, enabling faster responses to shifting market demands.

In this competitive environment, the responsibilities of an _____ (4) have broadened considerably. Today's professionals must write _____ (5) that meets high performance standards, _____ (6) system efficiency across diverse workloads, and effectively manage technical tasks like using a _____ (7) to translate code or an _____ (8) to process low-level instructions. Success depends not just on technical proficiency, but also on demonstrating strong _____ (9), allowing individuals to interpret business needs, contribute to strategic initiatives, and deliver high-value solutions.

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Managing large-scale data operations has also become critical. Professionals handling a _____ (10) are responsible for maintaining data integrity, security, and performance while supporting business analytics. Increasingly, companies are integrating _____ (11) goals into their IT strategies, recognizing that responsible technology management contributes to long-term profitability and brand reputation.

Securing a role in today's dynamic market involves navigating a highly competitive _____ (12) process. Recruiters prioritize candidates who combine technical ability with a _____ (13) of systems architecture, cloud platforms, and project management principles. To stay ahead, both freshers and experienced candidates must _____ (14) themselves with evolving technologies, industry best practices, and organizational priorities before applying.

Being prepared for unexpected challenges is equally vital. Whether responding to a cybersecurity threat or a system outage, professionals must have effective _____ (15) plans in place. Companies increasingly demand teams that can enhance system _____ (16) under pressure while minimizing downtime and disruption.

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Best practices such as continuous _____ (17) efforts, clean coding standards, and streamlined deployment processes within _____ (18) pipelines play a major role in achieving operational excellence. Thoughtful management of _____ (19) is now seen not only as a financial responsibility but also as a core pillar of corporate social responsibility strategies.

Ultimately, succeeding in the modern tech industry requires a mix of technical expertise, strategic thinking, and an understanding of the _____ (20) that drives innovation and sustainable growth. Those who act decisively, align with broader business goals, and adapt quickly will shape the future of technology and business alike.

Answer Key

Reading Comprehension Qs 1

1. According to the passage, what skills beyond technical ability are increasingly important for IT professionals?

2. Why is resource management critical for both financial and environmental reasons?

3. How does adopting decentralized platforms give companies a competitive advantage?

Answer Key

❑ Review 2 (Weeks 3, 4)

Fill in the blanks with the words below.

paradigm - manipulate - disadvantages - raw - flow - define - suitable - relevance - dabble - components - fragmentation - sequence - assume - robust - algorithm - efficiency

In the development of modern computing systems, adopting the correct _____ (1) is essential for achieving both structural stability and operational efficiency. A well-chosen foundation allows engineers to design a logical _____ (2) of tasks and organize critical system _____ (3) effectively. While designing complex architectures, developers must allocate and _____ (4) responsibilities, weighing both the advantages and inevitable _____ (5) of each approach. A deep understanding of system behavior during the planning stage can significantly influence extended project outcomes.

Innovation in system design often requires engineers to _____ (6) into unfamiliar technical areas or emerging fields. Unlike conventional methods, exploratory development often demands that teams _____ (7) certain conditions about performance, scalability, or user needs, and validate them through rigorous testing. When systems are built to handle extensive and unstructured _____ (8) data, developers must be prepared to effectively _____ (9) this information to extract valuable insights. Managing data _____ (10) is critical, as poor handling can lead to inefficiencies and systemic vulnerabilities.

paradigm - manipulate - disadvantages - raw - flow - define - suitable - relevance - dabble - components - fragmentation - sequence - assume - robust - algorithm - efficiency

Moreover, ensuring a smooth and reliable _____ (11) of operations across modules is essential to prevent internal conflicts. A system lacking cohesion may experience instability, even if individual parts are well-designed. Building a truly _____ (12) system involves selecting the most _____ (13) algorithms and technologies that can perform reliably across diverse environments. Core _____ (14), such as database management and error handling, must be integrated seamlessly to support flexibility and sustainability over time.

Finally, evaluating the upcoming _____ (15) of design decisions is crucial for sustained development. Furthermore, ensuring that system resources are optimized for _____(16) is key to achieving long-term success. By combining strategic planning, technical precision, and a commitment to continuous improvement, developers can create computing solutions that meet current needs and adapt effectively to evolving challenges.

Answer Key

Reading Comprehension Qs 2

1. What is the importance of adopting the correct paradigm in system development?

2. How does system design innovation differ from conventional methods?

3. Why is managing data fragmentation important in system development?

Answer Key

❑Review 3 (Weeks 5, 6)

Fill in the blanks with the words below.

leverage – initiative - gig economy - freelancer - repeat business - diversify income sources - a wealth of opportunities - robust portfolio - personal brand - unprecedented rate - set schedules - emerging trends - command - freedom - fluctuations in income - remote work flexibility

Picture this: You're sitting in your favorite coffee shop, typing away on your laptop, and suddenly, your phone buzzes. It's a client from halfway across the world asking if you're available for a project. No need to check the office calendar or rush to a meeting — you're a _____ (1), and you make your own rules. Thanks to _____ (2), you can work from anywhere, even in your pajamas (no judgment here). The _____(3) has transformed how people work, offering _____ (4) for those who are willing to embrace the freedom of freelancing.

But let's not sugarcoat everything — it's not all beach days and flexible hours. With great freedom comes great responsibility. Freelancers often face _____ (5), and suddenly those "unexpected" bills seem much harder to ignore. To combat this, it's crucial to _____ (6), which sounds like a fancy way of saying, "Don't put all your eggs in one basket." A _____ (7) is key to securing _____ (8), and a _____ (9) ensures you're the go-to person for your area of expertise.

leverage – initiative - gig economy - freelancer - repeat business - diversify income sources - a wealth of opportunities - robust portfolio - personal brand - unprecedented rate - set schedules - emerging trends - command - freedom - fluctuations in income - remote work flexibility

Of course, even freelancers have to _____ (10) — or, at least, try to. The truth is, you may end up working at 2 AM because that's when the ideas come to life. However, the _____ (11) to choose your hours is a huge perk, even if your "workday" often involves late-night brainstorming. As the gig economy grows at an _____ (12), staying informed about _____ (13) and gaining experience in new fields is critical. The most successful freelancers are the ones who take _____ (14) and _____ (15) platforms to _____ (16) competitive rates while continuing to juggle multiple projects

Answer Key

Reading Comprehension Qs 3

1. What makes freelancing so appealing in the gig economy?

2. How do freelancers manage the financial instability that comes with freelancing?

3. What strategies do successful freelancers use to stay competitive?

Answer Key

Review 1 back to exercise

1. booming
2. platform
3. decentralized
4. employee
5. efficient code
6. optimize
7. compiler
8. assembler
9. business acumen
10. data warehouse
11. environmental sustainability
12. recruitment
13. thorough knowledge
14. familiarize
15. disaster
16. scalability
17. optimization
18. DevOps
19. resource consumption
20. urgency

Comprehension Sample Answers 1

back to exercise

1. Business acumen, strategic thinking, adaptability, and the ability to deliver solutions aligned with organizational goals.

2. Efficient resource management reduces costs and minimizes environmental impact, supporting both profitability and sustainability.

3. Decentralized platforms allow faster adaptation to market changes, greater flexibility, and reduced risk of bottlenecks.

Review 2 back to exercise

1. paradigm
2. sequence
3. components
4. define
5. disadvantages
6. dabble
7. assume
8. raw
9. manipulate
10. fragmentation
11. flow
12. robust
13. suitable
14. components
15. relevance
16. efficiency

Comprehension Sample Answers 2

back to exercise

1. It ensures structural stability and operational efficiency in computing systems.

2. It requires engineers to explore new technical areas and validate assumptions through testing.

3. Poor data handling can lead to inefficiencies and systemic vulnerabilities.

Review 3 back to exercise

1. freelancer
2. remote work flexibility
3. gig economy
4. a wealth of opportunities
5. fluctuations in income
6. diversify income sources
7. robust portfolio
8. repeat business
9. personal brand
10. set schedules
11. freedom
12. unprecedented rate
13. emerging trends
14. initiative
15. leverage
16. command

Comprehension Sample Answers 3

back to exercise

1. Freelancing offers flexibility, allowing professionals to work from anywhere and set their own schedules.

2. By diversifying income sources, maintaining a strong portfolio, and setting aside savings for lean periods.

3. They stay informed about emerging trends, gain experience in new fields, and leverage platforms to command competitive rates.

❑ Week 0

a few years of experience
a keen understanding of
a leading employment sector
according to
achieve your dream job
AI frameworks
analyst
API
application
architect
ask questions to the recruiter
aspect
attend interview
average pay
based on
basics
be interested in something
booming
bring sth to life
build online presence
business acumen
certain roles
client
collaborate
common trends and patterns
complex
constructed
contribute
convey the findings
core skills
customer requirements

data models and algorithms
data visualization techniques
data warehouse
decentralized
designer
develop and implement
developer
DevOps
dominant
DSA
efficient code
employee
engineer
ensure
ensuring timely delivery
entry-level tech jobs
estimate
ever increasing
expect
familiarity
fast recruitment
find out what interests you the most
fresher/freshman
full stack
FY2024
gain knowledge about
gathering and analyzing
geek
generate money
get started
getting a job
good analytical and programming skills
good data intuition
handle
high demand jobs

India's GDP
industry
industry's revenue
interact with
interview preparation
Involve
key skills
latest advancements
lucrative fields
maintain
make choices/a choice
making more informed decisions
manager
median annual wage
miss opportunity
occupation
optimize the process
oversee
proactive and curious
product lifecycle
provided below
quality
reliability
remain
responsibility
scientist
setting strategies
skills needed for the role
software prototypes
solidifying its position
specialist
statistical computing
stay ready
strategic planning
strong understanding
super-competitive environment

target your dream company
technical knowledge
technology is dominating the world
the tech industry's worth
thorough knowledge
tips
to ensure accuracy
user experience
user interface
vast returns
working cross-functionally
your edge

❑ Week 1

a combination of both
a little bit
accessibility
allocate memory
allocate resources
assembler
authorization process
batch operating system
boost
boost the performance
capability
combination
compatibility
compatibility
compiler
computing device
control and monitor
convenient
database system
deterministic
disaster
distributed
easy/complex to use
effective and fair utilization
efficient grant
efficient use
embedded system
encryption
error-detecting aids
establish
execution of program
flexibility
function
hardware
household appliances

identifying bottlenecks
in case of
include
intermediary
keep track of
log
main memory
manipulation
manner
mediate conflicting request
multitasking
objective
operating system
organize
platform
policies
portability
provide
quick and deterministic responses
reside in something
resource request
respond to events
responsible for
scheduling
second storage
serve a real-time server
simultaneously
software
system calls
system logs and metrics
text editor
time interval
to be considered
to deallocate memory
usage
various distributions
virtualization
wearable devices
workloads

❑ Week 2

a challenging task
a change of mindset
a necessity
a necessity, not an option
a new research revealed
actual
adapt sth according to sth else
adopting the following principles
aggregate
an umbrella term
be upon someone
carbon footprint
carbon intensity specification
climate
climate crisis
combination
commensurate
competitive advantage
complementary approaches
compliance requirements
compress
compress and aggregate
conceptual framework
discourse
discourse
dubbed red AI
due attention
embrace
emphasize
encompass
energy intensive
engaged
enterprise
environmentally sound
environmentally sustainable
exploded use of software

foundation
further
future generations
get sb more engaged
green software bandwagon
greenhouse gases
harness new opportunities
impact
imperative
in case of
initiatives
Initiatives
innovative solutions
intended
intended purpose
intergovernmental
inward-looking
it’s imperative to do
limit climate change
longevity
make a huge difference
mandate
matter
motivate
motivate
nevertheless
our times
outward-looking
overall global emission
overlooked
overlooked factor
pledge to do sth
polling an unreachable server
positively impact
prospect

recognize
reduce
reduce duplicated efforts
reduce emissions
reinforce
reproducible
reproducible code
resource consumption
reveal
scalability
software is pervasive
span
sth holds huge potential to do sth
take sth down to sth
the very development of software
to deallocate memory
to take actions
transform
under different criteria
underlying hardware
unifying view
urgent
urgent and sustained actions
usage
when it comes to...
worsening
write and evaluate software

❑ Week 3

advantages/disadvantages
algorithm
arithmetic
audience
Boolean
component
consistent
control and manipulate
divide
flow
fragmentation
hierarchy
in-depth
integrated
intended and desired
paradigm
passionate enough
raw data
semantics
sequence
specific
specify
string
suit
take the big step to do sth
terminology
utility

❑ Week 4

applicable across various fields
apply
assume
backbone
based on
break down into
case study
dabble into sth
endeavor
equip yourself with
every blade of grass in a field
fetch data from an API
hack
in a strict sense
in its very essence
irrelevant
pattern recognition
relevance
robust
simulate
sort sth into sth
tackle

❑ Week 5

a more nuanced picture
ability to perceive such links
an extreme path
an outtake of
augment
be justified with
bi-polar concepts
brainstorming
break out of habitual ways of thinking
breakthrough insights
bursts of clarity
clichéd
closely related
come up with sth
concern
convergent
creative pursuits
different accounts of
distinguish between sth
divergence
divergent
dramaturgy
elegant and aesthetic
exaggeration
feel a little guilty
generate at will
hawk sth around to sb/sth
independence
interdependence of objects
interrelated
intrinsic limitations in the brain
it builds on (sth)
it seemed obvious
lateral thinking (horizontal thinking)
leave sth behind
light-bulb moment

make a distinction between
make classification difficult
peak experience
perception
poetic imagination/revelation/channeling
propose
recounting
restructure
scientific rigor
sequential
so-called vertical thinking
spatial
take a quantum leap
take place
tempo
the same goes for all work
transcend
vast amount of literature
well-crafted

❑ Week 6

a surge in sth
a wealth of opportunities
accelerate
at the forefront of sth
be sought after
broaden
cash flow
command competitive rates
continually
continually evolving
diversifying income sources
drive demand
dynamic sector
emergency fund
emerging trends
engage with the workforce
enhance skill set
enhance visibility and credibility
financial security
flexibility and autonomy
fluctuations in income
gain experience
geographical constraints
gig economy platforms
global reach
hurdle
implement effective strategies
income/financial stability
leverage platforms
maintain work-life balance
mitigate a challenge
personal brand
pivotal
pivotal component

referral
regular paycheck
remote work flexibility
repeat business
reputation
robust portfolio
secure
set aside savings
set schedules
shed light on sth
showcase
specialized skills
stand out in a crowded market
stay informed
substantial
substantial challenges
threats and vulnerabilities
thrive
unprecedented growth

CS50x Iran

Harvard's Computer Science 50x Iran